FINAL

Technical Support Document

for

the Notice of Final Rulemaking

on

the Clean Air Act Section 182(b)(1)

15 Percent Rate of Progress Requirement

for

the Phoenix Metropolitan Ozone Nonattainment Area

May 18, 1998

Air Division
U.S. Environmental Protection Agency - Region 9

Final TSD for the Phoenix Metro 15 Percent Plan

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Final Technical Support Document for the Notice of Final Rulemaking on the 15 Percent Rate of Progress Requirements in the Phoenix Metropolitan Ozone Nonattainment Area

I. Introduction and Background

A. Introduction

This technical support document (TSD) supports EPA's final determination under Clean Air Act (CAA) section 110(c) that the Phoenix, Arizona moderate ozone nonattainment area has in place sufficient control measures to meet the 15 percent rate of progress (ROP) requirement in Clean Air Act section 182(b)(2). This finding is based in part on EPA's analysis of Arizona's 15 percent plan for the Phoenix area which is contained in the *MAG 1993 Ozone Plan for the Maricopa County Area* (November 1993) *(MAG 1993 Plan*) and its *Addendum* (March 1994) and *Modeling Attainment Demonstration* (October 1994) and in part on EPA's analysis of additional federal measures that affect emissions in the Phoenix area.[1] EPA proposed this determination on January 26, 1998 (63 FR 3687).

This TSD also supports EPA's final approval under CAA sections 110(k) and 182(a)(1) of the 1990 base year emission inventory for the Phoenix ozone nonattainment area. This inventory was submitted by the State on April 1, 1993.

The Phoenix metropolitan area was originally classified as a moderate ozone nonattainment area on November 6, 1991. EPA has recently found that the Phoenix area failed to attain the 1-hour ozone NAAQS by the statutory deadline for moderate areas of November 15, 1996. As a result of this finding the area has been reclassified to serious. See 62 FR 60001 (November 6, 1997). However, this reclassification does not affect the requirement for a 1990 base year inventory or a 15 percent ROP demonstration.

This TSD is divided into three parts. The first part provides statutory and EPA requirements for 15 percent ROP plans. The second part provides EPA's evaluation of the area's compliance with 15 percent ROP requirement. The final part provides EPA's detailed responses to the comments received on the proposed action.

[1]These documents were submitted by the Arizona Department of Environmental Quality (ADEQ) on November 15, 1993; April 8, 1994; and November 14, 1994, respectively. The State also submitted *Revisions to the Modeling Attainment Demonstration*, March 1995 on March 31, 1995, which dealt solely with the attainment demonstration and did not affect the 15 percent plan. The State submitted additional ozone controls in the *Voluntary Early Ozone Plan for the Metropolitan Phoenix Area* (*VEOP*) on April 21, 1997. The *VEOP* did not include any revisions to the 15 percent ROP demonstration in the *MAG 1993 Plan*.

B. Background

1. Arizona's 15 Percent Plan for the Phoenix Area

On April 13, 1994, EPA found the 15 percent ROP demonstration contained in the November 15, 1993 submittal of the *MAG 1993 Plan* incomplete under Clean Air Act (CAA or Act) section 110(k)(6)(1)(B) because it failed to include, in fully adopted and enforceable form, all of the measures relied upon in the 15 percent demonstration. This incompleteness finding started the 18-month sanction "clock" in CAA section 179 and the two-year clock under section 110(c) for EPA to promulgate a federal implementation plan (FIP) covering the 15 percent ROP requirement. Subsequently Arizona supplemented the original submittal with the *Addendum* and *Modeling Attainment Demonstration*, both of which updated the 15 percent ROP demonstration. Based on these supplemental submittals, EPA found the 15 percent ROP and the attainment demonstrations complete on May 12, 1995, turning off the sanctions clock.[2] Under section 110(c), however, the FIP clock continues until EPA approves the 15 percent plan.

The 15 percent ROP demonstration in the *MAG 1993 Plan* relied primarily on improvements to the State's vehicle emissions inspection and maintenance program (I/M), a summertime gasoline volatility (RVP) limitation of 7.00 pounds per square inch (psi), numerous stationary and area source control measures, and a number of transportation control measures. Since 1995, EPA has acted to approve many of the control measures contained in the *1993 MAG Plan* and *VEOP* but has not acted on the overall 15 percent ROP demonstration.

Improvements to the State's I/M program (known as the Vehicle Emissions Inspection Program (VEIP)) included biennial IM240 transient testing for model year 1981 and newer vehicles, more stringent testing cut points (the tailpipe emissions levels at which cars are failed), pressure and purge testing, increased waiver limits, improvements to the anti-tampering program, and a remote sensing program. These I/M improvements accounted for 50 percent of the emission reductions necessary to show the required ROP. See *Addendum*, page 3-6. In designing its enhanced VEIP, Arizona relied in good faith on the technical specifications and associated emission reductions in EPA's enhanced I/M regulations, 40 CFR part 51, subpart S as promulgated on November 5, 1992 (57 FR 52950).

Arizona began to implement the improvements to its I/M program in early 1995 and quickly determined that EPA's pressure and purge test could not be implemented in practice in I/M testing lanes, and consequently suspended the tests. The State subsequently redesigned the pressure test and began implementing it in 1996. No effective purge test, however, is currently available. EPA continues to work to develop such a test and Arizona remains committed to implementing a test when it becomes available.

[2]The VEOP became complete by operation of law under CAA section 110(k)(1)(B) on October 18, 1997.

Early testing of the final cut points assumed in the State's 15 percent plan also indicated that they would not work in practice because of unacceptably high false failure rates (i.e., failing cars that should have passed) of up to 50 percent. Arizona is currently working to develop alternatives to the final cut points and intends to begin implementing those alternatives as early as 1999.

The purge test and the final cut points accounted for roughly 60 percent of the total emission reductions expected from the VEIP and 30 percent of the emission reductions necessary to show 15 percent ROP. In part to replace these lost emission reductions and in part to ensure continued progress toward attainment of the ozone standard in the Phoenix area, the State opted into EPA's federal reformulated gasoline program in 1997 (60 FR 30260 (June 3, 1997)) and has recently adopted its own, more stringent Cleaner Burning Gasoline (CBG) program as a replacement for the federal RFG program. EPA approved the State's CBG program on February 10, 1998. 63 FR 6653.

2. EPA's 15 Percent ROP Plan Obligation

In August 1996, EPA was sued by the American Lung Association of Arizona, *American Lung Association of Arizona (ALAA) Inc., et al v. Browner*, No. CIV 96-1856 PHX ROS (D.Ariz.). This case sought to enforce EPA's obligation under CAA section 110(c) to promulgate a federal plan for the 15 percent ROP requirement. On July 8, 1997 a consent decree was filed with the U.S. District Court for the District of Arizona establishing a schedule of January 20, 1998 for proposing and May 18, 1998 for promulgating a 15 percent ROP plan. Under the consent decree, EPA's obligation to promulgate a plan is relieved to the extent that it has approved State measures.

The State's 15 percent plan as revised and submitted in 1993 through 1995 does not reflect the changes to the control strategy necessitated by the problems with enhanced I/M and the implementation of the federal RFG program. In addition, EPA guidance requires a recalculation of the 15 percent target emission level if post-1996 emissions reductions (such as those from the RFG program) are to be credited to the 15 percent plan. As a result, EPA has not received a complete state submittal containing a revised 15 percent ROP demonstration that it could act on without additional analysis, public hearing and adoption by the State. Consequently EPA is complying with *ALAA* consent decree today by promulgating, pursuant to its CAA section 110(c) FIP authority, a federal 15 percent ROP plan for the Phoenix area. EPA's analysis upon which this FIP is passed is provided in this TSD.

II. Clean Air Act and EPA Policy Requirements for 15 Percent Plans

A. Fifteen Percent VOC Rate of Progress Requirement

CAA section 182(b)(1) requires each ozone nonattainment area classified as moderate or above to develop plans to reduce volatile organic compounds (VOC) emissions in the area by 1996 by 15 percent from 1990 baseline levels. This requirement is referred to as the 15 percent rate of progress or 15 percent ROP requirement.

CAA section 182(b)(1)(A)(i) states that

> By no later than [November 15, 1993], the State shall submit a revision to the applicable implementation plan to provide for volatile organic compound emission reductions, [by November 15, 1996], of a least 15 percent from baseline emissions, accounting for any growth in emissions after 1990.

Baseline emissions are defined in CAA section 182(b)(1)(B) as

> ...the total amount of actual VOC or [nitrogen oxides] emissions from all anthropogenic sources in the area during the calendar year [of 1990], excluding emissions that would be eliminated under the regulations described in clauses (i) [Federal Motor Vehicle Control Program] and (ii) [gasoline volatility rules] of subparagraph (D).

EPA has interpreted the baseline emission inventory to be a typical ozone season weekday inventory for all anthropogenic sources in the nonattainment area. This guidance stems from the fact that the ozone NAAQS is an hourly standard that is generally violated during ozone season (generally summer) weekdays when conditions are conducive to ozone formation. *General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 ("General Preamble")*, April 16, 1992, 57 FR 13498 at 13507.

The Act sets limitations on the creditability of certain control measures in ROP demonstrations. Emission reductions from the following programs cannot be used to demonstrate the 15 percent ROP:

- Federal Motor Vehicle Control Program (FMVCP) as promulgated prior to January 1, 1990. Section 182(b)(1)(D)(i).

- Gasoline volatility (Reid vapor pressure (RVP)) regulations promulgated prior to November 15, 1990 or required to be promulgated under section 211(h). Section 182(b)(1)(D)(ii)

- Corrections to reasonably available control technology (RACT) rules required by section 182(a)(2)(A). Section 182(b)(1)(D)(iii).

- Corrections to inspection and maintenance programs (I/M) required under section 182(a)(2)(B). Section 182(b)(1)(D)(iii)

All other measures are creditable provided they are 1) measures in the State Implementation Plan (SIP), 2) promulgated by EPA, or 3) included in a title V operating permit. See CAA section 182(b)(1)(C). All creditable emission reductions must be real, permanent, and enforceable and not double-counted (i.e., reductions cannot be used for offsets and to meet the 15 percent ROP requirement). *General Preamble* at 13509. Emission reductions must come from

sources in the baseline inventory. Emission reductions from sources outside the nonattainment area are not creditable. *General Preamble* at 13509.

B. Determining the 15 Percent Rate of Progress Target

To demonstrate that the 15 percent ROP requirement has been met in an area, the 1996 projected emission levels in that area must be at or below the 15 percent ROP target level. There are a number of steps involved in calculating the required target level. See *General Preamble* at 13507-8 and *Guidance on the Adjusted Base Year Emissions Inventory and the 1996 Target for the 15 Percent Rate of Progress Plans*, Office of Air Quality Planning and Standards, U.S. EPA. EPA-452/R-92-005, October 1992 (*"ROP Plan Guidance I")*, pp. 9-17.

Step 1 -- Develop the 1990 Base Year Inventory

The baseline emission inventory is derived from the 1990 base year inventory required by CAA section 182(a)(1). Section 182(a)(1) requires the submittal of a comprehensive, accurate, and current inventory of actual emissions from all sources. This base year inventory must address both anthropogic and biogenic sources of VOC, nitrogen oxides (NOx), and carbon monoxide (CO) during the peak ozone season and include all point sources within a 25 mile-wide buffer ozone around the designated nonattainment area. *General Preamble* at 13502.

Step 2 -- Develop the 1990 ROP Base Year Inventory for the Nonattainment Area

The 1990 ROP base year inventory is developed by adjusting the base year inventory to remove 1) all biogenic emissions and 2) all emission from sources outside the nonattainment area.

1990 ROP base year inventory = 1990 base year inventory - (biogenic sources + emissions from outside the nonattainment area)

Step 3 -- Develop the 1990 Adjusted Base Year Inventory

The 1990 adjusted base year inventory (which is also the baseline emissions inventory referred to in CAA section 182(b)(1)(B)) is calculated by removing from the 1990 ROP base year inventory any emissions reductions that will result from the FMVCP regulations promulgated by January 1, 1990 and from federal RVP regulations promulgated by January 1, 1990 or required by CAA section 211(h). In other words, the adjusted base year inventory must exclude any emission reductions that will accrue from motor vehicle fleet turn over and the new federal RVP standards applicable to the area between 1990 and 1996. To calculate the emissions reductions that will result from the FMVCP and RVP:

Actual 1990 emissions = 1990 VMT x MOBILE[3] emission factors reflecting actual 1990 conditions

Adjusted 1990 emissions = 1990 VMT x MOBILE emission factors or 1996 with CAA measures including any RVP changes disabled and no changes to the I/M program or other fuel parameters from 1990 conditions.

Expected emission reductions from FMVCP and RVP =

Actual 1990 emissions - adjusted 1990 emissions

This amount is subtracted from the 1990 ROP base year inventory to get the 1990 adjusted year inventory from which the 15 percent target is calculated.

1990 adjusted base year inventory = 1990 ROP base year inventory - Expected emission reductions from FMVCP and RVP

Step 4 -- Calculate the Required 15 Percent Reduction Target

To determine the 15 percent reduction target the 1990 adjusted base year inventory is multiplied by 0.15.

15 percent reduction target = 0.15 x 1990 adjusted base year inventory

Step 5 -- Calculate Total Reductions Needed by 1996

In this step, total emission reductions from the 1990 ROP base year inventory that are needed to meet the 15 percent demonstration are determined by summing 1) the 15 percent reduction calculated in Step 4, 2) the benefit of the FMVCP and RVP regulations calculated in Step 3, 3) and emission reductions from RACT and I/M corrections.

Emission reductions from any quantifiable corrections to required RACT rules are not creditable toward the 15 percent target. Methodology for calculating emission reductions from RACT rule corrections is found in Appendix B to *ROP Plan Guidance I*. Similarly, emission reductions from corrections to I/M programs are also not creditable. Corrections were needed if 1) the area's I/M program did not meet EPA's minimum standards or 2) the area's program did not meet the standards of its then-current SIP. Methodology for calculating emission reductions from I/M corrections is found in Appendix C to *ROP Plan Guidance I*.

total reductions needed by 1996 = 15 percent reduction target +

[3]MOBILE4 was to be used initially and then MOBILE5a as it became available. *ROP Plan Guidance I*, p. 12.

Expected emission reductions from FMVCP and RVP + RACT corrections + I/M corrections

Step 6 -- Calculate the 1996 Target Level of Emissions

The final step is to calculate the 1996 target level of emissions by subtracting the total expected reductions by 1996 from the 1990 ROP base year inventory calculated in step 2 above.

1996 target level = Step 2 - Step 5

= 1990 ROP base year inventory - total reductions needed by 1996

To show that an area meets the 15 percent ROP requirements net of growth, projected 1996 total anthropogenic emissions including growth expected through 1996 have to be at or below this level. In calculating their projected 1996 total emissions, reductions from the FMVCP, RVP regulations, other federal measures including maximum achievable control technology (MACT) standards, RACT corrections, I/M corrections, and any additional controls the state may adopt can be included.

C. Post-1996 Emission Reductions Creditable to the 15 Percent ROP Demonstration

Although the November 15, 1996 deadline for demonstrating a 15 ROP has now passed, the 15 percent ROP requirement remains. Once a statutory deadline has passed and has not been replaced by a later one, the deadline then becomes as soon as possible. *Delaney v. EPA*, 898 F.2d 687, 691 (9th Cir. 1990). EPA has interpreted this requirement to be "as soon as practicable" (55 FR 36458, 36505 (September 9, 1990)); therefore, to demonstrate that the Phoenix area has met the CAA section 182(b)(1) requirement, it must be demonstrated that the 15 percent reduction will be achieved as soon as practicable by showing that the applicable implementation plan contains all VOC control measures that are practicable for the Phoenix area and that meaningfully accelerate the date by which the 15 percent level is achieved. See *Note*, Margo Oge, Director, Office of Mobile Sources and John Seitz, Director, Office of Air Quality Planning and Standards to Regional Division Directors; "Re: Date by which States Need to Achieve all the Reductions Needed for the 15% Plan from I/M and Guidance for Recalculation," August 13, 1996 and *Memorandum*, John S. Seitz and Richard B. Ossias, Deputy Associate General Counsel to Regional Air Division Directors; "15 Percent VOC SIP Approvals and the 'As Soon As Practicable' Test;" February 12, 1997.

Reliance on post-1996 emission reductions in the 15 percent plan, however, requires that the 1996 target level of emission reductions be revised to remove the additional emission reductions from the FMVCP and federal RVP regulations between 1996 and the demonstration year (that is, the year that the 15 percent reduction will be achieved). See *Memorandum*, Gay MacGregor, Director, Regional and State Programs Division, OMS and Sally Shaver, Director, Air Quality Strategies and Standards Division, OAQPS to Regional Air Division Directors;

"Modeling 15% VOC Reduction(s) from I/M in 1999--Supplemental Guidance;" December 23, 1996.

The steps involved in calculating the revised target are for on-road motor vehicle controls:

Step 1 -- Calculate a 1990 adjusted base year on-road inventory for 1996:

1996 motor vehicle (MV) emission factor (MOBILE5a run for 1996 with CAA measures except Phase II RVP turned off) x 1990 vehicle miles traveled (VMT)

Step 2 -- Calculate a 1990 adjusted base year on road inventory for the demonstration:

Demonstration year MV emission factor (MOBILE5a run for demonstration year with CAA measures except RVP turned off) x 1990 VMT

Step 3 -- Calculate the difference between the two on-road inventories:

Uncreditable emission reductions from fleet turn over and RVP controls between 1996 and demonstration year

= Step 1 - Step 2

This amount is to be added to the emission reductions necessary to show 15 percent reduction.

Step 4 -- Calculate the projected 1996 on-road emissions inventory using demonstration year highway vehicle emission factors representing I/M test conditions and fuel characteristics in the demonstration year multiplied by 1996 VMT levels.

III. 15 Percent Rate of Progress Demonstration

A. 1990 Base Year Emission Inventory

1. State Inventory

The baseline from which the required reductions are determined for the 15 percent ROP plan is the 1990 base year emissions inventory. Arizona submitted a SIP revision containing the 1990 base year emissions inventory for the Maricopa County ozone nonattainment area on April 2, 1993. An amended submittal was made on November 15, 1993 as part of *the 1993 Ozone Plan*. Table 1 summarizes this inventory. EPA is proposing to fully approve this base year inventory as meeting both CAA section 182(a)(1) and EPA's guidance for ozone emission inventories. EPA's analysis of the 1990 base year emission inventory can be found in the memo in Appendix 1 of this TSD.

TABLE 1
METROPOLITAN PHOENIX 1990 BASE YEAR EMISSIONS INVENTORY
(METRIC TONS PER DAY)

SOURCE TYPE	VOC	NOX	CO
Point Sources	25.6	70.9	13.8
Area Sources	111.8	7.4	3.9
On-Road Mobile	136.2	130.1	911.5
Non-Road Mobile	57.9	85.2	521.1
Biogenic	37.3	0	0
Total	368.8	293.6	1450.3

Source: "1990 Base Year Ozone Emission Inventory for the Maricopa County, Arizona, Nonattainment Area, Final Submittal", Maricopa County Environmental Quality and Community Service Agency, July 1993 found in the *1993 Ozone Plan*, Appendix B, Exhibit 1.

2. Adjustments to Base Year Inventory

For the purposes of its 15 percent demonstration, EPA has slightly modified the State's base year inventory to reflect the delisting of perchloroethylene (used primarily as a drycleaning solvent) as a VOC (61 FR 4588 (February 7, 1996)), a revised version of EPA's MOBILE5a (March 29, 1993) on-road motor vehicle emission estimation model, and modified MOBILE5a inputs.

EPA has revised the base year inventory with the March 1993 version of MOBILE5a because it has used this version of the model in projecting future year on-road inventories, calculating the impact of the FMVCP and Phase I RVP controls, and in demonstrating the 15 percent reduction. The inputs to the model were also modified slightly from those used by the State in its base year inventory to assure consistency (where appropriate) between base year and

future year model runs.[4] EPA also used local diesel sales fractions instead of national default diesel sales fractions.

These modifications that EPA do not affect the approvability of the State's 1990 base year emissions inventory. The delisting of perchloroethylene occurred after the statutory due date for the inventory. In addition, states were not required to upgrade to the later version of MOBILE5a for their base year inventories. See *Memorandum,* Philip A. Lorang, Director, Emission Planning and Strategies Division, OMS to Regional Air Division Directors; "Release of MOBILE5a Emission Factor Model," March 29, 1993. Finally, the use of local diesel sales fractions is preferred although not required.

As shown in Table 2, these modifications decreased the submitted base year area source inventory by 1.2 metric tons per day and the on-road mobile inventory by 0.6 metric ton per day for a total decrease in the inventory of 1.8 metric tons per day.

TABLE 2
ADJUSTED METROPOLITAN PHOENIX 1990 BASE YEAR EMISSIONS INVENTORY
(VOC EMISSION IN METRIC TONS PER DAY)

SOURCE TYPE	STATE INVENTORY	ADJUSTMENT	ADJUSTED INVENTORY
Point Sources	25.6	0	25.6
Area Sources	111.8	-1.2	110.6
On-Road Mobile	136.2	-0.6	135.6
Non-Road Mobile	57.9	0	57.9
Biogenic	37.3	0	37.3
Total	368.8	-1.8	367

[4]EPA noted in the proposal that its principle MOBILE5a modification was to use minimum and maximum daily temperatures to calculate temperature corrections to the VOC exhaust emissions, hot soak evaporative emissions, and resting loss emissions instead of a single ambient temperature as was done by Arizona and that, although it does not recommend the use of a single ambient temperature to calculate these emissions, the impact on the base year inventory in this case was so slight (less than 0.6 metric tons per day out of an inventory of 136 metric tons per day or less than 0.5 percent) as to not constitute grounds for disapproval. 63 FR 3689, footnote 5. This footnote was in error. Arizona used minimum and maximum daily temperatures in its MOBILE runs and EPA inadvertently used a single temperature. Because the difference was so slight and the same approach was used consistently from base year and future year inventories, the use of a single temperature value does not invalidate the conclusion that the Phoenix area has in place sufficient reductions to show the required 15 percent ROP.

To calculate the base year on-road inventory, EPA made two MOBILE5a runs, one assuming the State's 1990 I/M program and one assuming no I/M. The input and output files for these runs are in Appendix 2. Composite on-road emission factors were then calculated assuming 88 percent of the fleet was subject to I/M and 12 percent was not. The composite emission factors are given in Appendix 2. The total inventory, by vehicle type and road class, is shown in Table 3.

B. 15 Percent ROP Target Calculations

Step 1 -- 1990 Base Year Emission Inventory

The 1990 base year emission inventory (with the minor adjustments discussed above) is given in Table 4.

TABLE 3

ADJUSTED METROPOLITAN PHOENIX 1990 ON-ROAD VOC EMISSIONS INVENTORY

Vehicle Class	Roadway Type	Speed (MPH)	Factor (grams/mile)	DVMT (miles/day)	Emissions (kg/day)	Vehicle Class	Roadway Type	Speed (MPH)	Factor (grams/mile)	DVMT (miles/day)	Emissions (kg/day)
LDGV	**Urban**					LDGT2	**Urban**				
	Fwys & Expwys	55.7	2.08	6,231,162	8398		Fwys & Expwys	55.7	3.22	6,231,162	1706
VMT fraction:	Principal art.	30.3	2.82	12,674,890	23196	VMT fraction:	Principal art.	30.3	4.17	12,674,890	4497
0.649	Minor art.	30.3	2.82	3,492,062	6391	0.085	Minor art.	30.3	4.17	3,492,062	1239
	Collectors	25	3.19	1,408,728	2920		Collectors	25	4.70	1,408,728	563
	Local roads	20	3.69	4,378,342	10477		Local roads	20	5.41	4,378,342	2013
	Rural						**Rural**				
	Fwys & Expwys	59.3	2.28	2,094,702	3096		Fwys & Expwys	59.3	3.58	2,094,702	638
	Principal art.	36.7	2.49	6,695,709	10812		Principal art.	36.7	3.72	6,695,709	2116
	Minor art.	36.7	2.49	1,844,736	2979		Minor art.	36.7	3.72	1,844,736	583
	Collectors	30	2.84	904,098	1665		Collectors	30	4.20	904,098	323
	Local roads	20	3.69	2,821,554	6752		Local roads	20	5.41	2,821,554	1297
LDGT1	**Urban**					HDGV	**Urban**				
	Fwys & Expwys	55.7	2.78	6,231,162	2739		Fwys & Expwys	55.7	6.28	6,231,162	1369
VMT fraction:	Principal art.	30.3	3.54	12,674,890	7080	VMT fraction:	Principal art.	30.3	8.56	12,674,890	3798
0.158	Minor art.	30.3	3.54	3,492,062	1951	0.035	Minor art.	30.3	8.56	3,492,062	1046
	Collectors	25	3.96	1,408,728	882		Collectors	25	9.86	1,408,728	486
	Local roads	20	4.52	4,378,342	3126		Local roads	20	11.74	4,378,342	1798
	Rural						**Rural**				
	Fwys & Expwys	59.3	3.09	2,094,702	1024		Fwys & Expwys	59.3	6.21	2,094,702	455
	Principal art.	36.7	3.17	6,695,709	3352		Principal art.	36.7	7.56	6,695,709	1771
	Minor art.	36.7	3.17	1,844,736	923		Minor art.	36.7	7.56	1,844,736	488
	Collectors	30	3.56	904,098	508		Collectors	30	8.62	904,098	273
	Local roads	20	4.52	2,821,554	2014		Local roads	20	11.74	2,821,554	1159
				Total:	100283					Total:	27622

TABLE 3 -- CONTINUED
ADJUSTED METROPOLITAN PHOENIX 1990 ON-ROAD VOC EMISSIONS INVENTORY

Vehicle Class	Roadway Type	Speed (MPH)	Factor (grams/mile)	DVMT (miles/day)	Emissions (kg/day)	Vehicle Class	Roadway Type	Speed (MPH)	Factor (grams/mile)	DVMT (miles/day)	Emissions (kg/day)
LDDV	**Urban**					HDDV	**Urban**				
	Fwys & Expwys	55.7	0.66	6,231,162	29		Fwys & Expwys	55.7	1.35	6,231,162	480
VMT fraction:	Principal art.	30.3	1.02	12,674,890	90	VMT fraction:	Principal art.	30.3	2.09	12,674,890	1509
0.007	Minor art.	30.3	1.02	3,492,062	25	0.057	Minor art.	30.3	2.09	3,492,062	416
	Collectors	25	1.19	1,408,728	12		Collectors	25	2.46	1,408,728	197
	Local roads	20	1.42	4,378,342	44		Local roads	20	2.93	4,378,342	731
	Rural						**Rural**				
	Fwys & Expwys	59.3	0.65	2,094,702	9		Fwys & Expwys	59.3	1.33	2,094,702	159
	Principal art.	30.3	0.86	6,695,709	40		Principal art.	30.3	1.77	6,695,709	677
	Minor art.	30.3	0.86	1,844,736	11		Minor art.	30.3	1.77	1,844,736	187
	Collectors	30	1.02	904,098	6		Collectors	30	2.11	904,098	109
	Local roads	20	1.42	2,821,554	28		Local roads	20	2.93	2,821,554	471
LDDT	**Urban**					MC	**Urban**				
	Fwys & Expwys	55.7	0.47	6,231,162	6		Fwys & Expwys	55.7	8.72	6,231,162	326
VMT fraction:	Principal art.	30.3	0.73	12,674,890	18	VMT fraction:	Principal art.	30.3	9.27	12,674,890	705
0.002	Minor art.	30.3	0.73	3,492,062	5	0.006	Minor art.	30.3	9.27	3,492,062	194
	Collectors	25	0.86	1,408,728	2		Collectors	25	9.68	1,408,728	82
	Local roads	20	1.02	4,378,342	9		Local roads	20	10.19	4,378,342	268
	Rural						**Rural**				
	Fwys & Expwys	59.3	0.46	2,094,702	2		Fwys & Expwys	59.3	9.23	2,094,702	116
	Principal art.	30.3	0.62	6,695,709	8		Principal art.	30.3	8.91	6,695,709	358
	Minor art.	30.3	0.62	1,844,736	2		Minor art.	30.3	8.91	1,844,736	99
	Collectors	30	0.73	904,098	1		Collectors	30	9.29	904,098	50
	Local roads	20	1.02	2,821,554	6		Local roads	20	10.19	2,821,554	172
				Total:	355					Total:	7305
										Grand total:	135565

TABLE 4
ADJUSTED METROPOLITAN PHOENIX 1990 BASE YEAR EMISSIONS INVENTORY (VOC EMISSION IN METRIC TONS PER DAY)

SOURCE TYPE	INVENTORY
Point Sources	25.6
Area Sources	110.6
On-Road Mobile	135.6
Non-Road Mobile	57.9
Biogenic	37.3
Total	367

Step 2 -- 1990 ROP Base Year Inventory for the Nonattainment

The 1990 ROP base year inventory is developed by adjusting this base year inventory to remove 1) all biogenic emissions and 2) all emissions from sources outside the nonattainment area (Table 5).

1990 ROP base year inventory = 1990 base year inventory - (biogenic sources + emissions from outside the nonattainment area)

TABLE 5
PHOENIX 1990 ROP BASE YEAR EMISSIONS INVENTORY
(VOC EMISSION IN METRIC TONS PER DAY)

	ADJUSTMENT (MT/D)	ROP BASE YEAR INVENTORY (MT/D)
1990 Base year inventory		367.0
Stationary sources outside of the nonattainment area	- 1.8	
Biogenic emissions	- 37.3	
1990 nonattainment area base year anthropogenic inventory		327.9

The figure for sources outside the nonattainment area comes from "1990 Base Year Inventory," p. 2-31: 4013 lb per day/2204 lb per metric ton = 1.8 metric tons per day

Step 3 -- 1990 Adjusted Base Year Inventory

The 1990 adjusted base year inventory (which is also the baseline emissions inventory referred to in CAA section 182(b)(1)(B)) is calculated by removing from the 1990 ROP base year inventory any emissions reductions that will result from the FMVCP regulations promulgated by January 1, 1990 and from federal RVP regulations promulgated by January 1, 1990 or required by CAA section 211(h). To calculate the emissions reductions that will result from the FMVCP and RVP:

Actual 1990 emissions = 1990 VMT x MOBILE emission factors reflecting actual 1990 conditions

Adjusted 1990 emissions = 1990 VMT x MOBILE emission factors reflecting 1996 year conditions with CAA measures including any RVP changes disabled and no changes to the I/M program or other fuel parameters from 1990 conditions.

Expected emission reductions from FMVCP and RVP =

Actual 1990 emissions - adjusted 1990 emissions

TABLE 6
EXPECTED EMISSION REDUCTIONS FROM FMVCP AND FEDERAL RVP STANDARDS -- ON-ROAD ONLY
(VOC EMISSION IN METRIC TONS PER DAY)

YEAR	ADJUSTED 1990 EMISSIONS	1990 ACTUAL EMISSIONS	EXPECTED EMISSION REDUCTIONS FROM FMVCP AND RVP ON-ROAD ONLY
1996	90.2	135.6	45.4
1997	87.3	135.6	48.3
1998	86.8	135.6	48.8
1999	85.2	135.6	50.4

Appendix 3 contains sample MOBILE5a input and output files, the composite emission factors, and the total on-road inventory, by vehicle type and road class.

Further adjustments to the inventory are necessary because of the effect of RVP controls on emissions from gasoline-powered non-road engines. These adjustments are summarized in Table 7 and are discussed in more detail in Section III.C.2. below. Also shown in Table 7 are the uncreditable reductions from the FMVCP and RVP changes between 1996 and later years.

TABLE 7
EXPECTED EMISSION REDUCTIONS FROM FMVCP AND FEDERAL RVP STANDARDS
TOTAL FOR ON AND NON-ROAD SOURCES
(VOC EMISSION IN METRIC TONS PER DAY)

YEAR	ON-ROAD	NON-ROAD	TOTAL	YEAR - 1996 DIFFERENCE
1996	45.4	2.0	47.4	--
1997	48.3	2.0	50.3	2.9
1998	48.8	2.0	50.8	3.4
1999	50.4	2.0	52.4	5.0

The expected emission reductions from FMVCP and federal RVP limits in 1996 are subtracted from the 1990 ROP base year inventory to get the 1990 adjusted year inventory from which the 15 percent target is calculated.

1990 adjusted base year inventory = 1990 ROP base year inventory - Expected emission reductions from FMVCP and RVP

The results from this calculation for the Phoenix area are shown in Table 8.

TABLE 8
PHOENIX ADJUSTED BASE YEAR INVENTORY
(VOC EMISSION IN METRIC TONS PER DAY)

YEAR	1990 ROP BASE YEAR INVENTORY	TOTAL REDUCTIONS FROM FMVCP AND RVP	ADJUSTED BASE YEAR INVENTORY
1996	327.9	47.4	280.5

Step 4 -- Calculate the Required 15 Percent Reduction Target

To determine the 15 percent reduction target the 1990 adjusted base year inventory is multiplied by 0.15.

15 percent reduction target = 0.15 x 1990 adjusted base year inventory

The result of this calculation for the Phoenix area is given in Table 9.

TABLE 9
PHOENIX 15 PERCENT REDUCTION TARGET
(VOC EMISSION IN METRIC TONS PER DAY)

YEAR	1990 ADJUSTED BASE YEAR INVENTORY	15 PERCENT TARGET
1996	280.5	42.1

Step 5 -- Calculate Total Reductions Needed by 1996

In this step, total emission reductions from the 1990 ROP base year inventory that are needed to meet the 15 percent demonstration are determined by summing 1) the 15 percent reduction calculated in Step 4, 2) the reductions from the uncreditable FMVCP and RVP

regulations occurring between 1990 and 1996, 3) the reductions from the uncreditable FMVCP and RVP regulations occurring between 1996 and the demonstration year and 4) emission reductions from RACT and I/M corrections.

The estimated emission reductions from the RACT corrections are shown in Table 10. No I/M correction was needed for the Phoenix area.

TABLE 10
EMISSION REDUCTIONS FROM RACT CORRECTIONS
(VOC EMISSIONS IN METRIC TONS PER DAY)

MEASURE	REDUCTION
Rule 337 - Graphic Arts	0.37
Rule 350 - Storage of Organic Liquids at Bulk Terminals	0.06
Rule 353 - Transfer of Gasoline into Stationary Storage Dispensing Tanks	0.02
Rule 336 - Surface Coating Operations	0.00
Rule 338 - Semiconductor Manufacturing	1.21
Rule 341 - Metal Casting	0.68
Total	2.3

Source: *1993 Ozone Plan*, Appendix B, Exhibit 2, Attachment 4

Total reductions needed by the demonstration year are calculated as follows:

total reductions needed = 15 percent reduction target + Expected emission reductions from FMVCP and RVP (1990-1996) + expected emission reductions from FMVCP and RVP (1996 - demonstration year) + RACT corrections + I/M corrections

The results from this calculation for the Phoenix area shown in Table 11.

TABLE 11
TOTAL REDUCTIONS NEEDED TO SHOW 15 PERCENT ROP
(VOC EMISSION IN METRIC TONS PER DAY)

YEAR	FMVCP AND RVP (1990-1996)	FMVCP AND RVP (1996-YEAR)	15 PERCENT	RACT	TOTAL REDUCTION NEEDED
1996	47.4	0	42.1	2.3	91.8
1997	47.4	2.9	42.1	2.3	94.7
1998	47.4	3.4	42.1	2.3	95.2
1999	47.4	5.0	42.1	2.3	96.8

Step 6 -- Calculate the 1996 Target Level of Emissions

The final step is to calculate the demonstration year target level of emissions by subtracting the total needed reductions by the demonstration year from the 1990 ROP base year inventory calculated in step 2 above.

target level = Step 2 - Step 5

= 1990 ROP base year inventory - total reductions needed

The results from this calculation for the Phoenix area are shown in Table 12.

TABLE 12
TARGET LEVEL OF EMISSIONS NEEDED TO SHOW 15 PERCENT ROP
(VOC EMISSION IN METRIC TONS PER DAY)

YEAR	1990 ROP BASE YEAR INVENTORY	TOTAL REDUCTIONS NEEDED	TARGET LEVEL OF EMISSIONS
1996	327.9	91.8	236.1
1997	327.9	94.7	233.2
1998	327.9	95.2	232.7
1999	327.9	96.8	231.1

C. Control Measure Evaluation

1. Stationary and Area Source Measures

Stationary point and area sources include a wide variety of non-mobile emissions sources from stationary combustion sources such as boilers to emissions from refueling of automobiles. The primary sources of emissions from stationary sources in the Phoenix area are gasoline-handling operations and the evaporation of VOC-containing solvents from paints, other surface coatings, consumer products, and pesticides.

Maricopa County Environmental Services Department (MCESD) has adopted a number of rules to control emissions from many stationary source categories. In addition, the Arizona Department of Weights and Measures has adopted Stage II vapor recovery for service stations to control emissions from vehicle refueling. Finally, there are also several proposed national rules that regulate manufacturers of solvent-containing materials such as consumer products and autobody refinishing paints.

As a starting point for analyzing which control measures to include in its 15 percent demonstration, EPA reviewed Arizona's submitted 15 percent plan for the Phoenix metropolitan area. The State's plan explicitly relied on a number of the stationary source controls measures. Many of these measures have been adopted as rules and have been separately submitted as SIP revisions. The State's 15 percent plan also relied less explicitly on a number of other measures that were adopted either after 1990 or had compliance deadlines after 1990 but prior to submittal of the 15 percent plan. These measures include the State's Stage II vapor recovery rules and the County's architectural coatings rule. In the State's plan emission reductions from these measures were included in projecting emissions to 1996 rather than explicitly included in demonstrating the 15 percent. While the State's approach is acceptable, EPA has chosen to explicitly identify these measures and included their emission reductions in the 15 percent demonstration it has developed for the area.

Table 13 identifies all major stationary source control measures submitted by the State and describes their current SIP approval status. Table 14 identifies which measures are creditable to the 15 percent demonstration and Table 15 provides emission reduction calculations for each measure. Finally, Table 16 summarizes the creditable emission reductions for each measure and Table 17 presents the 1990 base year and 1996 projected, controlled inventory for stationary point and area sources.

TABLE 13
SIP APPROVAL STATUS OF STATIONARY SOURCE MEASURES SUBMITTED BY ARIZONA

MEASURE	CITE	DESCRIPTION	STATUS
Wood coating	*Addendum*, p. 2-13 H.B. 2001, section 4 (A.R.S. 11-874(1)) MCESD Rule 342--Coating Wood Furniture and Fixtures and Rule 346--Coating Wood Millwork	Requires Maricopa County to develop, implement, enforce rules regulating VOC emission from the wood coating industry sector by a minimum of 25% from 1990 baseline emissions by 11/15/95.	Rule 342--Coating Wood Furniture and Fixtures (adopted 4/3/96, amended 11/20/96) SIP status: submitted, approved 2/9/98 (63FR6489) Rule 346--Coating Wood Millwork (adopted 4/3/96, amended 11/30/96) SIP status: approved 2/9/98 (63FR6489)
Commercial bakeries	*Addendum*, p. 2-13 H.B. 2001, section 4 (A.R.S. 11-874(2)) MCESD Rule 343--Commercial Bread Bakeries	Requires Maricopa County to develop, implement, enforce a rule regulating VOC emission from the commercial bakery industry sector by a minimum of 30% from 1990 baseline emissions by 11/15/95.	Rule 343--Commercial Bread Bakeries (adopted 2/15/95) SIP status: Approved 3/17/97 (62FR12544)
Windshield wiper fluids	*Addendum*, p. 2-14 H.B. 2001, section 4 (A.R.S. 11-874(3)) MCESD Rule 344--Automotive Windshield Washer Fluid	Requires Maricopa County to develop, implement, enforce a rule requiring the reformulation of windshield wiper fluid that contains a concentration of not more than 30% VOC or any other component by 11/15/95.	Rule 344--Automotive Windshield Washer Fluid (adopted 2/15/94, revised 4/3/96) SIP status: submitted, no action
Consumer and commercial products (Contingency measure)	*Addendum*, p. 2-14 H.B. 2001, section 4 (A.R.S. 11-874(3))	If triggered, requires Maricopa County to adopt EPA's CTG for the consumer and commercial products.	SIP status: submitted, no action No rule adopted. No CTG. Proposed national rule to regulate 24 (including windshield wiper fluid) categories of consumer products published on 4/2/96 (61FR14531). Final rule expected by 8/15/98 with implementation in late 1998.

TABLE 13 - CONTINUED
SIP APPROVAL STATUS OF STATIONARY SOURCE MEASURES SUBMITTED BY ARIZONA

MEASURE	CITE	DESCRIPTION	STATUS
CTG adoption (Contingency measure)	*Addendum*, p. 2-16 H.B. 2001, section 4 (A.R.S. 11-872)	Contingency measure triggered by SIP call. If triggered, requires the adoption of any CTG within 60 days of its issuance by EPA (trigger is a SIP call).	SIP status: submitted, no action
	MCESD Rule 336--Surface Coating Operations	Aerospace CTG Measure converted to 15% ROP measure, see *Modeling Attainment Demonstration*, p. 3-7.	Proposed but no final CTG. NESHAP proposed. Rule 336--Surface Coating Operations (adopted 7/13/88, latest revision 6/19/96) SIP status: Revision submitted 2/26/97, limited approval 2/9/98 (63FR6487)
	Addendum, p. 2-16 H.B. 2001, section 4 (A.R.S. 11-872) MCESD Rule 337--Graphic Arts	Graphic arts CTG Measure converted to 15% ROP measure, see *Modeling Attainment Demonstration*, p. 3-7.	No CTG issued. ACT issued June 1994 Rule 337--Graphic Arts (Adopted 4/6/92, latest revision 11/20/96) SIP status: 4/6/92 version approved on 9/5/95 (60FR46024), revision submitted, 3/4/97, approved 2/9/98 (63FR6489)
	MCESD Rule 345--Vehicle Refinishing National rule proposed on April 30, 1996 (61FR19005) and reproposed on December 15, 1997 (62FR67784)	Auto refinishing CTG	No CTG issued. ACT issued April 1994. Rule 345--Vehicle Refinishing (Adopted 2/15/95, amended 11/20/96) SIP status: submitted, 3/4/97, no action National rule proposed April 30, 1996 (61FR19005) and December 30, 1997 (62FR67784). Final rule expected by 8/15/98 with implementation in late 1998.
	MCESD Rule 342--Coating Wood Furniture and Fixtures and Rule 346--Coating Wood Millwork	Coating Wood Furniture and Fixtures CTG Measure converted to 15% ROP measures, see *Modeling Attainment Demonstration*, p. 3-7.	CTG issued May 20, 1996, rules revised. See discussion under wood coatings above.

TABLE 13 - CONTINUED
SIP APPROVAL STATUS OF STATIONARY SOURCE MEASURES SUBMITTED BY ARIZONA

MEASURE	CITE	DESCRIPTION	STATUS
Graphic arts	*Addendum*, p. 2-12 H.B. 2001, section 4 (A.R.S. 11-873) MCESD Rule 337--Graphic Arts	Maricopa County is to develop, implement, enforce a rule regulating emissions from the graphic arts industry sector, requires enhanced enforcement of this rule through increased frequency and targeting of inspections, increased sampling frequency, and use of portable analyzers or any other techniques.	Rule 337--Graphic Arts (Adopted 4/6/92, latest revision 11/20/96) SIP status: 4/6/92 version approved on 9/5/95 (60FR46024) revision submitted, 3/4/97 ,approved 2/9/98 (63FR6489) No action on improved rule effectiveness.
Architectural and industrial coatings	*Addendum*, p. 2-12 H.B. 2001, section 4 (A.R.S. 11-873) MCESD Rule 335--Architectural coatings and Rule 336--Surface Coating Operations	Maricopa County is to develop, implement, enforce a rule regulating emissions from the architectural and industrial coatings industry sector, requires enhanced enforcement of this rule through increased frequency and targeting of inspections, increased sampling frequency, and use of portable analyzers or any other techniques.	Rule 335--Architectural coatings (adopted 7/13/88) SIP status: Approved 1/6/92 (57FR354) Rule 336--Surface Coating Operations (adopted 7/13/88, latest revision 6/19/96) SIP status: Submitted, limited approval 2/9/98 (63FR6487) No action on improved rule effectiveness.
Highway markings	*Addendum*, p. 2-12 H.B. 2001, section 4 (A.R.S. 11-873) MCESD Rule 335--Architectural coatings	Maricopa County is to develop, implement, enforce a rule regulating emissions from the highway markings industry sector, requires enhanced enforcement of this rule through increased frequency and targeting of inspections, increased sampling frequency, and use of portable analyzers or any other techniques.	Rule 335--Architectural coatings (adopted 7/13/88) (section 305, traffic coating limit effective 7/13/91) SIP status: Approved 1/6/92 (57FR354) No action on improved rule effectiveness. National AIM rule proposed more stringent limits on traffic coatings. See 61FR12544 (June 25, 1996)
Bulk plants and terminals	*Addendum*, p. 2-12 H.B. 2001, section 4 (A.R.S. 11-873) MCESD Rule 350--Storage of Organic Liquids at Bulk Plants and Terminals	Maricopa County is to develop, implement, enforce a rule regulating emissions from bulk plants and terminals, requires enhanced enforcement of this rule through increased frequency and targeting of inspections, increased sampling frequency, and use of portable analyzers or any other techniques.	Rule 350--Storage of Organic Liquids at Bulk Plants and Terminals (adopted 7/13/88, revised 4/6/92) SIP status: revision approved 9/5/95 (60FR 46024) No action on improved rule effectiveness.

TABLE 13 - CONTINUED
SIP APPROVAL STATUS OF STATIONARY SOURCE MEASURES SUBMITTED ARIZONA

MEASURE	CITE	DESCRIPTION	STATUS
Tank truck loading operations	*Addendum*, p. 2-12 H.B. 2001, section 4 (A.R.S. 11-873) MCESD Rule 351--Loading of Organic Liquids	Maricopa County is to develop, implement, enforce a rule regulating emissions from tank truck loading operations, requires enhanced enforcement of this rule through increased frequency and targeting of inspections, increased sampling frequency, and use of portable analyzers or any other techniques.	Rule 351--Loading of Organic Liquids (adopted 7/13/88, revised 4/6/92, latest revision 2/15/95) SIP status: 4/6/92 revision approved 9/5/95 (60FR12544); 2/15/95 version submitted, approved 2/9/98 (63FR6489) No action on improved rule effectiveness.
Stage I/II vapor recovery	MCESD Rule 353 -- Transfer of Gasoline into Stationary Storage Dispensing Tanks *Addendum*, p. 2-15 H.B. 2001, section 16 (A.R.S. 41-2134)	Requires the installation of certified Stage I vapor recovery equipment at service stations. Requires the director of Weights and Measures to adopt rules to enhance enforcement of state II vapor recovery program. Enhanced enforcement of this rule may be done through increased frequency and targeting of inspections, increased sampling frequency, and use of portable analyzers or any other techniques.	Rule 353--- Transfer of Gasoline into Stationary Storage Dispensing Tanks (adopted 7/13/88, revised 4/6/92) SIP status: Approved 2/1/96 (61FR3578) Stage II vapor recovery regulations were approved on 11/1/94 (59FR54521). Stage I & II requirements found in A.R.S. title 41, chapter 15, article 7 (A.R.S. §§41-2131 through 2133) and A.A.C. R4-31-901 through R4-31-910. Both require the sole use of CARB certified vapor recovery equipment, see A.R.S. §41-2132(A) and 41R4-31-904(A). No new rules adopted by ADW&M; no action on improved rule effectiveness.
Solvent cleaning	MCESD Rule 331 -- Solvent Cleaning	Reduce emissions from degreasing operations.	MCESD Rule 331 -- Solvent Cleaning (adopted 7/13/88, revised 6/22/92, latest revision 6/19/96) SIP status: Approved 2/1/96 (61FR3578), 6/19/96 version submitted, approved 2/9/98 (63FR6489)
Solvent cleaning operations	*VEOP*, B-23 H.B. 2237, section 3 (A.R.S. 11-874(4))	Requires Maricopa County to develop, implement, enforce a rule regulating VOC emission from the solvent cleaning operations including the use of nonaqueous solvents. The regulations may include lower VOC content solvents or low VOC aqueous material substitutions.	No rule adopted. Rule under development.

TABLE 14
CREDITABILITY OF STATIONARY SOURCE MEASURES

MEASURE	CITE	CREDITABILITY
Wood coating	MCESD Rule 342--Coating Wood Furniture and Fixtures MCESD Rule 346--Coating Wood Millwork	Rules 342 & 346 have phased compliance: 5/3/96 for sources >= 50 tpy and 11/15/96 for sources < 50 tpy (Rule 342, section 401 and Rule 346, section 401). Emission reductions from implementation through 11/15/96 are fully creditable.
Commercial bakeries	MCESD Rule 343--Commercial Bread Bakeries	Rule 343 required full compliance by 11/15/95. Emission reductions from the rule are fully creditable in 1996.
Windshield wiper fluids	MCESD Rule 344--Automotive Windshield Washer	Rule 334 is not SIP approved. Emission reductions from the Rule 344 are not creditable toward 15%. Emission reductions from windshield wiper fluid included in national consumer product rule.
Consumer and commercial products	*Addendum*, p. 2-14 H.B. 2001, section 4 (A.R.S. 11-874(3)) national rule: proposed 4/2/96 (61FR14531).	No rule adopted. Proposed national rule to regulate 24 categories (including windshield wiper fluids) of consumer products published on 4/2/96 (61FR14531). National rule creditable at 20% of effected source categories per *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Regulatory Schedule for Consumer and Commercial Products under Section 182(e) of the Clean Air Act;" June 22, 1995.
CTG adoption (STATE CONTINGENCY MEASURE, partially converted to 15% plan measures)	*Addendum*, p. 2-16 H.B. 2001, section 4 (A.R.S. 11-872)	No rules adopted. No creditable emission reductions.
	MCESD Rule 336--Surface Coating Operations	Rule 336 required compliance by 9/21/92 (section 401). Emission reductions from the rule are fully creditable in 1996.
	MCESD Rule 337--Graphic Arts	See below under graphic arts.

TABLE 14 - CONTINUED
CREDITABILITY OF STATIONARY SOURCE MEASURES

MEASURE	CITE	CREDITABILITY
CTG adoption (CONTINGENCY MEASURE, partially converted to 15% plan measures)	MCESD Rule 345--Vehicle Refinishing National rule proposed on April 30, 1996 (61 FR 19005) and reproposed on December 15, 1997 (cite)	Compliance required by 11/15/95 (section 401). Rule is not SIP approved No creditable emission reductions from Rule 345. In lieu of local rule, national rule for this category is creditable at 37% reduction, per *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance Coating Rule and the Autobody Refinishing Rule;" November 29, 1994.
	MCESD Rule 342--Coating Wood Furniture and Fixtures MCESD Rule 346--Coating Wood Millwork	See above under wood coatings.
Graphic arts	MCESD Rule 337--Graphic Arts	Limits in Rule 337 were effective 5/3/96 (section 401). Emission reductions from the rule are fully creditable in 1996. No creditable emission reductions from improved RE.
Architectural and industrial coatings	MCESD Rule 335--Architectural coatings	All limits in Rule 335 effective by 7/13/91 (Section 300) Emission reductions from the rules are fully creditable in 1996. No creditable emission reductions from improved RE.
Highway markings	MCESD Rule 335--Architectural coatings	Rule 335, section 305, traffic coating limit was effective 7/13/91 Emission reductions from the rule for highway markings are fully creditable in 1996. No creditable emission reductions from improved RE.
Bulk plants and terminals	MCESD Rule 350--Storage of Organic Liquids at Bulk Plants and Terminals	Rule 350 limits were effective 5/3/96 (section 401). Emission reductions from the rule are fully creditable in 1996. No creditable emission reductions from improved RE.

TABLE 14 - CONTINUED
CREDITABILITY OF STATIONARY SOURCE MEASURES

MEASURE	CITE	CREDITABILITY
Tank truck loading operations	MCESD Rule 351--Loading of Organic Liquids	Rule 351 required compliance by 4/30/96 (section 402) Emission reductions from the rule are fully creditable in 1996. No creditable emission reductions from improved RE.
Stage I/ II vapor recovery	MCESD Rule 353 -- Transfer of Gasoline into Stationary Storage Dispensing Tanks A.R.S. 41-2134	A.R.S. 41-2134 required compliance by 11/15/94 (A.R.S. 41-2132(I)). Emission reductions are fully creditable from Stage II. Stage I credit from addition of pressure vacuum valves.
Degreasing	Rule 331 - Solvent Cleaning	Rule 331 required compliance prior to November 15, 1996. Emission reductions can be credited but are assumed in the base line projections.
Industrial Solvent cleaning operations	*VEOP*, B-23 H.B. 2237, section 3 (A.R.S. 11-874(4))	No rule adopted by County. No creditable emission reductions.

TABLE 15
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Wood coating	MCESD Rule 342--Coating Wood Furniture and Fixtures MCESD Rule 346--Coating Wood Millwork	Base year inventory: *1990 Base Year Inventory*, pp. 2-46 & 2-47 + missing source 6027. Growth surrogate for wood coatings is employment/HAPs/prev with a growth factor from 1990-1996 of 0.95, *1996 Baseline Projection Inventory*, p. 52 (source 6060). Revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 2.	1990 Point only: 5079 + 4167 ppd + 715 ppd = 9961 ppd Baseline growth factor assumed a 5% reduction from HAPs/P2 controls, w/o this control growth factor is 1.00 Control is 25% with a 80% rule effectiveness 1996 emissions reductions = 9961 ppd x 1.00 x (0.25x0.80) = **1992 ppd or 0.91 mt/d** <u>Does not include any reductions from area source wood coaters.</u> Point sources covered are: 6001, 6045, 6072, 6055, 6060, 6061, 6046, 6026, 6002, 6068, 6017, 6025, 6027, 6034, 6042, 6041, 6074, 6075, 6048, 6053, 6057, 6054, 6059, and 6067
Commercial bakeries	MCESD Rule 343--Commercial Bread Bakeries	Base year inventory: *1990 Base Year Inventory*, p. 2-22. Growth surrogate for bakeries is employment/food with a growth factor from 1990-1996 of 1.13, *1996 Baseline Projection Inventory*, p. 55 (example source 8018). Revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 1.	1685 ppd, all point sources only (1990) 1136 ppd from points 8018 and 8019 (1990) Revised growth factor: control is 30% with a 80% rule effectiveness Rule 343 applies only to two largest bakeries (8018 and 8019) at 81% reduction for a category wide control level of 30% from point sources. 1996 emissions reductions = 1136 ppd x 1.13 x (0.81x0.80) = **831 ppd or 0.38 mt/d**

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Consumer and commercial products	Credit allowed per Seitz memo "Regulatory Schedule for Consumer and Commercial Products under Section 183(e) of the Clean Air Act," 6/22/95 National rule proposed on April 2, 1996 (61FR 14531)	Base year inventory: *1990 Base Year Inventory*, p. 3-56. Reduction estimates: *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Regulatory Schedule for Consumer and Commercial Products under Section 182(e) of the Clean Air Act;" June 22, 1995. Growth surrogate for consumer products category is population. Population growth factor from 1990-1996 is 1.16, *1996 Baseline Projection Inventory*, p.61.	Inventory gives total per capita figure for source category is 6.3 lb per capita per year. National rule regulates 3.9 lb per capita per year at 20 percent control. Total percent control for category is (3.9 x 0.2)/6.3 = 12.4% 1990 population was 2,180,638 1996 emissions reductions: = 2,189,638 x 1.16 x 6.3 lb per capita per year x 0.124/365 day/year = **5436 ppd or 2.5 mt/d**

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Aerospace	MCESD Rule 336--Surface Coating Operations	Base year inventory: *1990 Base Year Inventory*, pp. 2-21 to 2-31. Growth surrogate for aerospace sources varies by source, see calculations and *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 12. ID of sources subject to rule and revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 6.	Point source (6540, 6008, 6043, 4452, 4453, 6069, 6050) = 783 ppd + 137 ppd + 322 ppd + 138 ppd + 433 ppd + 184 ppd + 109 ppd = 2106 ppd (1990), growth factor is 1.00 (employment/manufacturing), no reduction from HAPS/P2 program assumed Assumed 67% of emissions are from hand wiping and cleaning with an emission reduction of 80% and rule effectiveness of 80% Estimated reduction = 2106 ppd x 1 x (0.67x0.80x0.80) = 903 ppd Point sources (1209) = 374 ppd (1990), growth factor is 1.00 (Luke), same assumptions re: emission reduction as above Estimated reduction = 374 ppd x 1 x (0.67x0.80x0.80) = 160 ppd Point sources (6024) = 79 ppd (1990), growth factor is 1.05 (transportation), same assumptions re: emission reduction as above Estimated reduction = 79 ppd x 1.05 x (0.67x0.80x0.80) = 36 ppd Point sources (1218) = 225 ppd (1990), growth factor is 0.65 (AV forecasts), same assumptions re: emission reduction as above Estimated reduction = 225 ppd x 0.65 x (0.67x0.80x0.80) = 63 ppd Total reduction = **1162 ppd or 0.53 mt/d**

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Graphic arts	MCESD Rule 337--Graphic Arts	List of sources subject to rule is from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 5. Base year inventory: *1990 Base Year Inventory*, pp. 2-16 thru 2-20 (point) and 3-51 (area). Growth surrogate for graphic sources varies by source, see calculations and *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, pp. 17 - 18. Revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 4 -5.	Emission reductions come from expansion of the rule to offset lithography operations. Area sources = 7,868 ppd (1990), growth factor 1.02 (employment/printing & publishing) Point source (5002) = 88 ppd, growth factor is 1.34 (employment/business services) Point sources (5003, 5004, 5005, 5014, 5011) = 72 ppd + 89 ppd + 161 ppd + 185 ppd + 185 ppd = 692 ppd (1990), growth factor is 1.02 (employment/printing & publishing) Point sources (5013) = 90 ppd (1990), growth factor is 1.0 (employment/manufacturing) Point source (newspapers) (5008, 5009) = 117 ppd + 85 ppd = 202 ppd (1990), growth factor is 1.02 (employment/printing & publishing) Point sources (5006, 5017, 5010, 5012) = 167 ppd + 497 ppd + 368 ppd + 174 ppd = 1206 ppd (1990), growth factor is 1.02 (employment/printing & publishing) Point sources (5016) = 16 ppd (1990), growth factor is 1.0 (employment/manufacturing) Area sources: estimated that 50% of emissions are from clean up and 50% from inks Control effectiveness = 71% from IPA fountain solutions and 70% from clean up, rule effectiveness = 80% (p. 4 of *Air Quality Bill*) Emission reduction = 7,868 ppd x 1.02 [(0.5x0.8x.71) + (0.5x0.8x0.70) = 4526 ppd Point sources (other litho): estimated that 35% of emissions are from clean up with a control effectiveness of 70%, rule effectiveness = 80% (p. 4 of *Air Quality Bill* Emission reductions (5002) = 88 ppd x 1.34 (0.80x0.70x0.35) = 17 ppd

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Graphic arts - continued	MCESD Rule 337--Graphic Arts	List of sources subject to rule is from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 5. Base year inventory: *1990 Base Year Inventory*, pp. 2-16 thru 2-20 (point) and 3-51 (area). Growth surrogate for graphic sources varies by source, see calculations and *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, pp. 17 - 18. Revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 4 -5.	Emission reductions (5003, 5004, 5005, 5014, 5011) = 692 ppd x 1.02 (0.80x0.70x0.35) = 138 ppd Emission reductions (5013) = 90 ppd x 1.02 (0.80x0.70x0.35) = 18 ppd Point sources (newspapers): estimated that 80% of emissions are from clean up with a control effectiveness of 70%, rule effectiveness = 80% (p. 5 of *Air Quality Bill*) Emission reductions (5008, 5009) = 202 ppd x 1.02(0.80x0.70x0.80) = 92 ppd Point sources (5006, 5010, 5017, 5012, 5016): estimated that 35% of emissions are from clean up with a control effectiveness of 70%, rule effectiveness = 80%; estimated 65% from operations, no additional control assumed (no reduction from HAPs/P2 program or rule effectiveness improvements) (p. 5 of *Air Quality Bill*) Emission reductions (5006, 5010, 5017, 5012) = 1206 ppd x 1.02x(0.80x0.35x0.7) = 241 ppd Point source (5016) = 178 ppd x 1.00(0.80x0.35x0.7) = 35 ppd Total: **5067 ppd or 2.30 mt/d**

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Degreasing	MCESD Rule 331 -- Solvent Cleaning	Base year inventory: *1990 Base Year Inventory*, p 3-46. Growth surrogate for area sources is population. Population growth factor from 1990-1996 is 1.16 (AMS 24-15-000-000), *1996 Baseline Projection Inventory*, p. 60. Control factors are from *1996 Baseline Projection Inventory*, p. 10.	Reductions are assumed to be from area sources only. 1990 area sources = 18,740 ppd Control on cold cleaning is 55 percent, with rule effectiveness of 80 percent impacting 85.7 percent of cold cleaning operations which comprise 96 percent of degreasing emissions 1996 reduction = 18,740 x 0.55 x 0.80 x 0.96 x 0.857 = **6783 ppd** = **3.08 mt/d**
Auto refinishing	National rule proposed on April 30, 1996 (61 FR 19005)	Base year inventory: *1990 Base Year Inventory*, p 3-44/45. Growth surrogate for area sources is population. Population growth factor from 1990-1996 is 1.16 (AMS 24-01-005-000), *1996 Baseline Projection Inventory*, p. 60. Seitz memo "Credit for the 15% ROP Plans for Reductions from the AIM Coating Rule and the Autobody Refinishing Rule," November 29, 1994.	Seitz memo allows at 37% reduction from current emissions, 100% rule effectiveness and 100% rule penetration. 1990 area sources = 3.48 tpd = 6,951 ppd 1996 reduction = 0.37 x 6,951 x 1.16 = **2983 ppd** = **1.36 mt/d**

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Bulk Plants and Terminals loading	MCESD Rule 351--Loading of Organic Liquids	Base year inventory: *1990 Base Year Inventory*, p. 2-21. Growth surrogate for bulk plants is ADOT/MAG with a growth factor from 1990-1996 of 1.06, *1996 Baseline Projection Inventory*, p. 33 (example source 3324). Revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 3 and table 4 (p. 10).	Reduction is from a change in emission limit to 0.8 lb/1000 gal. from 0.23 lb/1000 gal. 1990 inventory is 10052 ppd - 22 ppd (3001) - 102 ppd (1209) - 134 ppd (1218) - 95 (3301) = 9669 ppd Growth factor is 1.06 Rule effectiveness is 80% Only 77.4% of the emissions from the affected sources come from tank truck loading operations Emission reductions = 9669 ppd x 1.06 [0.774 x 0.8 x (1 - 0.08/0.23)] = **4139 ppd or 1.88 mt/d**
Architectural and industrial coatings	MCESD Rule 335--Architectural coatings	Base year inventory: *1990 Base Year Inventory*, p. 3-43 and *1996 Baseline Projection Inventory*, p. 27 (AMS 24-01-001-000). Growth surrogate for architectural coatings is population with a growth factor from 1990-1996 of 1.16, *1996 Baseline Projection Inventory*, p. 60 (AMS 24-01-001-000).	1990 inventory was 27,482 ppd Growth factor is 1.16 Estimated control is 20 percent (*1996 Baseline Projection Inventory*, p. 10) Rule effectiveness is 80% Emission reductions = 27,482 x 1.16 x 0.2 x 0.8 = **5100 ppd or 2.32 mt/d**
Highway markings	MCESD Rule 335--Architectural coatings	Base year inventory: *1996 Baseline Projection Inventory*, p. 27 (AMS 24-01-008-000). Growth surrogate for vehicle refueling is population with a growth factor from 1990-1996 of 1.16. *1996 Baseline Projection Inventory*, p. 60 (AMS 24-01-008-000).	Reduction is from a change in emission limit from 3.5 lb/gal to 2.1 lb gal 1990 inventory is 3,495 ppd Growth factor is 1.16 Rule effectiveness is 80% Emission reductions = 3,495 x 1.16 x 0.80 x (1-2.1/3.5) **= 1,230 ppd or 0.56 mt/d**

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
Stage II Vapor Recovery	A.R.S. 41-2134	Base year inventory: *1990 Base Year Inventory*, p. 3-20. Growth surrogate for vehicle refueling is ADOT/MAG with a growth factor from 1990-1996 of 1.06. Revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 2.	No reductions from improved rule effectiveness. 1990 area sources = 25,824 ppd Controlled emissions from stage II vapor recovery is 1.01 g/gal at 83 percent RE or 1.01 g/gal x 83/77 at 77 percent = 1.09 g/gal Uncontrolled emissions from gasoline refueling are 4.52 g/gal Control effectiveness is 1 - 1.09/4.52 = 0.759 1996 reduction = 25,824 ppd x 1.06 x 0.759 = **20,776 ppd** = **9.44 mt/d**
Stage I Vapor Recovery	MCESD Rule 353 -- Transfer of Gasoline into Stationary Storage Dispensing Tanks A.R.S. 41-2134	Base year inventory: *1990 Base Year Inventory*, p. 3-17. Growth surrogate for tank truck unloading is ADOT/MAG with a growth factor from 1990-1996 of 1.06, *1996 Baseline Projection Inventory*, p. 58 (AMS 25-01-060-053). Revised growth/control factors are from *Air Quality Bill Based 1996 and 2005 Projection Growth Factors for VOC Emissions*, p. 2. Note emission reduction factor for P-V valves is incorrect, the correct factor is 0.475 lb/1000 gal (*Meeting the 15-Percent Rate of Progress Requirement Under the Clean Air Act: A Menu of Options*, p. 218).	98% of unloading is done through balance fill and 2% by submerged fill Base emissions =10,135 ppd (assumes 90% control effectiveness and a 80% rule effectiveness and an emission factor of 3.28 lb/1000 gal for balance and 7.027 for submerged, composite factor is 0.98x3.28 + 0.02x7.027 = 3.35 lb/1000 gal) Corrected emission factor using P-V value improvement is 3.28 - 0.475x0.8 = 2.90 lb/1000 gal assuming no improvement in rule effectiveness for balance fill 7.027 - 0.475x0.8 = 6.65 lb/1000 gal assuming no improvement in rule effectiveness for submerged fill Composite emission factor is 0.98x2.9 + 0.02x6.65 = 2.975 lb/1000 gal 1996 emission reduction = 10,135 ppd x 1.06 x (1 - 2.975/3.35) = **1,203 ppd or 0.55 mt/d**

TABLE 15 - CONTINUED
EMISSION REDUCTIONS FROM STATIONARY SOURCE RULES

MEASURE	RULE	CITES FOR EMISSION REDUCTION CALCULATIONS	EMISSION REDUCTION CALCULATIONS
National Architectural and Industrial Maintenance Rule	National rule proposed on June 25, 1996 (61 FR 32729)	Base year inventory: *1990 Base Year Inventory*, p. 3-43 and *1996 Baseline Projection Inventory*, p. 27 (AMS 24-01-001-000). Growth surrogate for architectural coatings is population with a growth factor from 1990-1996 of 1.16. *1996 Baseline Projection Inventory*, p. 60. Control estimates are from *Architectural Coatings - Background for Proposed Standards*, Emissions Standards Division, OAQPS, U.S. EPA. March 1996.	See Table 4-4 in Appendix 4 1996 Reduction = 1348 ppd **= 0.61 mt/d**

TABLE 16
SUMMARY OF EMISSION REDUCTIONS FROM POINT AND AREA SOURCE CONTROLS

RULE	YEAR	REDUCTION (MT/D)
Rule 331 - Solvent Cleaning	1996	3.08
Rule 335 - Architectural Coatings	1996	2.32
Traffic marking coatings	1996	0.56
Rule 336 - Surface Coating	1996	0.53
Rule 337 - Graphic Arts	1996	2.30
Rule 342/346 - Wood Coating	1996	0.91
Rule 343 - Bakeries	1996	0.38
Rule 351 - Bulk Loading	1996	1.88
Stage I Vapor Recovery	1996	0.55
Stage II Vapor Recovery	1996	9.44
National Rule - Consumer and Commercial Products	1998	2.5
National Rule - Autobody Refinishing	1998	1.36
National Rule - AIM	1999	0.61
Total		26.42

TABLE 17
TOTAL CONTROLLED EMISSIONS FROM STATIONARY POINT AND AREA SOURCES (METRIC TONS PER DAY)

CATEGORY	1990 BASE YEAR	1996 CONTROLLED
Point	23.2	18.2
Area	110.8	93.3
Total	134	111.5

2. Non-Road Mobile Sources

Non-road mobile sources include airplanes, trains, and gasoline- and diesel-powered engines used in construction, lawn and garden care, agriculture, and business. There are currently no creditable controls on VOC emissions from airplanes, trains, and diesel-powered engines. For gasoline-powered engines, however, VOC emissions are limited by volatility (RVP) limits on gasoline, reformulated gasoline, and the national non-road engine standards promulgated on July 3, 1995 (60 FR 34582).

Reductions in emissions from gasoline-powered non-road engines result from Arizona's RVP limit of 7.0 psi which was approved on June 11, 1997 (62 FR 31734) and federal reformulated gasoline program which was approved for the Phoenix area on June 3, 1997 (62 FR 30260). EPA has recently approved Arizona's Clean Burning Gasoline (CBG) Program (63 FR 6653 (February 10, 1998)) which is will eventually replace the federal RFG program.[5] Arizona CBG program is designed to more stringent than the federal RFG program, so there should not be loss of emission reductions as a result of the transition to the State's RFG program.

a. Emission Reductions from RVP Limits

Guidance on calculating the emission reductions from the use of lower-RVP fuel and reformulated gasoline in non-road engines is found in *Memorandum,* Phillip Lorang, Director, Emission Planning and Strategies Division, Office of Mobile Sources, U.S. EPA, to Regional Air Division Directors, "VOC Emission Benefits for Nonroad Equipment with the Use of Federal Phase 1 Reformulated Gasoline," August 18, 1993 ("Lorang memo").

The 1990 base year inventory assumed a 9 pound per square inch (psi) RVP for evaporative (Lorang memo, p. 5) and 12.5 psi RVP for refueling (Lorang memo, p. 7). Emission reductions resulting from reducing RVP from these levels to 7.8 psi, the Federal Phase I limits, are not creditable to the 15 percent plan under CAA section 182(b)(1)(D)(ii). Reductions from 7.8 psi to the approved State limit of 7 psi are fully creditable. RVP limits affect only evaporative and refueling emissions from non-road engines; they have no effect on exhaust emissions. Emission reductions from RVP limits on evaporative and refueling emissions are shown in Tables 18 and 19.

[5]On September 12, 1997, the Governor of Arizona requested to opt the Phoenix area out of the federal RFG program.

TABLE 18
REDUCTIONS FROM RVP LIMITS
ON EVAPORATIVE EMISSIONS FROM NON-ROAD ENGINES

RVP CHANGE	PERCENT REDUCTION	CREDITABLE/UNCREDITABLE
9 psi to 7.8 psi	8.9	Uncreditable
7.8 psi to 7.1 psi	3.2	Creditable
7.1 psi to 7.0 psi	0.5	Creditable
Total	3.7 / 8.9	Creditable / uncreditable.

Source: Lorang memo, p. 6. The figure for the 7.1 psi to 7.0 psi number extrapolated from other data on the table.

TABLE 19
REDUCTIONS FROM RVP LIMITS
ON REFUELING EMISSIONS FROM NON-ROAD ENGINES

RVP CHANGE	PERCENT REDUCTION	CREDITABLE/UNCREDITABLE
12.5 psi to 7.8 psi	61.1	Uncreditable
7.8 psi to 7.1 psi	10.0	Creditable
7.1 psi to 7.0 psi	1.4	Creditable
Total	11.4 / 61.1	Creditable / uncreditable.

Source: Lorang memo, p. 7. The figure for the 7.1 psi to 7.0 psi number extrapolated from the data on the table.

b. Emission Reductions from Federal Phase I Reformulated Gasoline

VOC benefits from Phase I RFG (7.1 psi RVP) are 3.3 percent from exhaust emissions and 3.5 percent from evaporative emissions in class B areas such as Phoenix. Lorang memo, p. 1. RFG's evaporative emission benefits come principally from the reduction in RVP and are accounted for in calculating the emission reduction from RVP limits.

For two-stroke gasoline engines, exhaust emissions contribute 96.03 percent of total emissions; evaporative, 1.23 percent; and refueling, 2.74 percent. For four-stroke gasoline engines, exhaust emissions contribute 86.1 percent of total emissions; evaporative, 5.1 percent; and refueling, 8.8 percent. *1993 Ozone Plan, Addendum*, Exhibit 3, Measure O and P, Reduced Gasoline Volatility.

Tables 20 through 23 provide the composite emission reduction percentages for RFG and RVP.

TABLE 20
2-STROKE GASOLINE ENGINES - RFG EFFECTS

EMISSION CATEGORY	REDUCTION	CONTRIBUTION TO TOTAL GASOLINE VOC EMISSIONS	APPORTIONED REDUCTION	
			NONCREDITABLE	CREDITABLE
Exhaust	3.3%	96.03%	--	3.17%

Table 21
2-STROKE GASOLINE ENGINES - RVP EFFECTS

EMISSION CATEGORY	REDUCTION		CONTRIBUTION TO TOTAL GASOLINE VOC EMISSIONS	APPORTIONED REDUCTION	
	UNCRED-ITABLE	CREDIT-ABLE		UNCREDITABLE	CREDITABLE
Evaporative	8.9%	3.7%	1.23%	0.11%	0.05%
Refueling	61.1%	11.4%	2.74%	1.67%	0.31%
				1.78%	0.81%
Total with RFG				5.76%	

TABLE 22
4-STROKE GASOLINE ENGINES - RFG EFFECTS

EMISSION CATEGORY	REDUCTION	CONTRIBUTION TO TOTAL GASOLINE VOC EMISSIONS	APPORTIONED REDUCTION	
			NONCREDITABLE	CREDITABLE
Exhaust	3.3%	86.1%	--	2.84%

Table 23
4-STROKE GASOLINE ENGINES - RVP EFFECTS

EMISSION CATEGORY	REDUCTION		CONTRIBUTION TO TOTAL GASOLINE VOC EMISSIONS	APPORTIONED REDUCTION	
	UNCRED-ITABLE	CREDIT-ABLE		UNCREDITABLE	CREDITABLE
Evaporative	8.9%	3.7%	5.1%	0.45%	0.19%
Refueling	61.1%	11.4%	8.8%	5.38%	1.00%
				5.88%	1.19%
Total with RFG				9.91%	

Emission reductions from each category of non-road engines are given in Tables 5-1 (RVP) and 5-2 (RFG) in Appendix 5 and are summarized in Table 24. Base year inventories and growth factors are taken from "1996 Baseline Projection Inventory for Volatile Organic Compounds (VOC) Emissions, Final Submittal," January 1994, Maricopa County Environmental Management and Transportation Agency found in Exhibit 4 to the *1993 Ozone Plan Addendum.*

TABLE 24
SUMMARY OF REDUCTIONS FROM 7.0 PSI RVP LIMITS AND FEDERAL PHASE I REFORMULATED GASOLINE IN NON-ROAD ENGINES
(POUNDS PER DAY)

CATEGORY	1990 BASE YEAR	1996 ADJUSTED INVENTORY [1]	1996 WITH UNCREDIT. RVP REDUCTION	1996 WITH CREDITABLE RVP REDUCTION	1996 WITH RFG REDUCTION
2-stroke engines	43,300	42,529	40,924	40,586	39,300
4-stroke engines	61,220	57,620	56,320	55,608	54,029
Totals (ppd)	106,510	102,145	99,240	98,190	95,325
Totals (mt/d)	48.4	46.4	45.1	44.6	43.3
Reductions (mt/d)	--	2.0	1.3	0.5	1.3

[1] To determine the 1996 adjusted inventory for the 15 percent calculation, the same basic principle is applied to the non-road engines as was applied to on-road, that is the inventory is the 1996 projected levels of control at 7.8 psi is applied to the 1990 level of activity.

c. Emission Reductions from Federal Non-Road Engine Standards

On July 3, 1995, EPA promulgated Phase I emission standards for new spark-ignition (gasoline) engines of 25 horsepower or less. These engines include those typically used in lawnmowers and other residential gardening equipment, commercial lawn and garden equipment, and small pumps and compressors, and some other industrial/construction equipment. The Phase I standards were effective with model year 1997 engines and are expected to reduce emissions from the impacted equipment types by 4.5 percent in 1996, 12.8 percent in 1997, 19.0 percent in 1998, and 22.9 percent in 1999. See *Memorandum*, Philip A. Lorang, Director, Emission Planning and Strategies Division, OMS to Regional Air Division Directors; "Future Nonroad Emission Reduction Credits for Court-Ordered Nonroad Standards;" November 29, 1994 (Lorang memo II).

Emission reductions from each category of non-road engines are given in Tables 5-3 (1996), (5-4) 1997, 5-5 (1998) and 5-6 (1999) in Appendix 5 and are summarized in Table 25. Note that emission reductions are calculated from a base that assumes the implementation of RFG and RVP per Lorang memo II, p. 11.

TABLE 25
SUMMARY OF REDUCTIONS FROM THE FEDERAL NONROAD ENGINE STANDARDS (POUNDS PER DAY)

CATEGORY	1996 CONTROLS (NO RFG)	1997 CONTROLS	1998 CONTROLS	1999 CONTROLS
2-stroke engines	38,817	34,395	32,036	30,552
4-stroke engines	53,335	47,641	44,605	42,695
Totals (ppd)	92,152	82,036	76,641	73,247
Totals (mt/d)	41.9	37.3	34.8	33.3
Base	96,194	93,328	93,328	93,328
Reduction (ppd)	4,042	11,292	16,687	20,081
Reductions (mt/d)	1.8	5.1	7.6	9.1

d. Summary of Non-Road Emissions Inventory

The controlled emissions from gasoline-powered nonroad equipment must be summed with the emissions from planes, trains, and diesel-powered equipment to determine the total emission inventory in the non-road category. Table 26 provides a summary of emissions from all nonroad categories. Inventories for planes, trains, and diesel-powered nonroad equipment are taken from *1996 Baseline Projection Inventory* and are summarized in Tables 5-7 (diesel engines) and 5-8 (airplanes and trains) in Appendix 5.

TABLE 26
SUMMARY OF NONROAD EMISSIONS
(POUNDS PER DAY)

CATEGORY	1996 CONTROLS	1997 CONTROLS	1998 CONTROLS	1999 CONTROLS
2-stroke engines	38,817	34,395	32,036	30,552
4-stroke engines	53,335	47,641	44,605	42,695
Diesel engines	15,628	15,628	15,628	15,628
Airplanes	3,068	3,068	3,068	3,068
Locomotives	1,726	1,726	1,726	1,726
Totals (ppd)	112,574	102,458	97,063	93,669
Totals (metric tons per day)	51.2	46.6	44.1	42.6

3. On-Road Motor Vehicle Control Measures

On-road mobile sources include both gasoline- and diesel-powered passenger cars; light- and heavy-duty gasoline- and diesel-powered trucks; and motorcycles. Controls on these sources included tailpipe emission standards from the Federal Motor Vehicle Control Program (FMVCP), inspection and maintenance programs, fuel quality standards (including reformulated gasoline and RVP controls), and transportation control measures.

a. 1996 Baseline Inventory

The 1996 baseline inventory represents emissions in 1996 assuming no additional controls other than those in place in 1990 and any additional reductions accrued from the FMVCP from 1990 to 1996 and the federal 7.8 psi RVP limit. For Phoenix, the primary mobile source control in place in 1990 was the State's loaded-mode I/M program. Projected 1996 VMT numbers were taken from *1996 Baseline Projection Inventory*, p. 78. The 1996 baseline inventory was also slightly adjusted to reflect the actual fuel quality found in Phoenix during 1996. See Letter,

Nancy C. Wrona, Director, Air Quality Division, ADEQ to David Howekamp, Director, Air and Toxics Division, U.S. EPA Re: Submittal of Additional Information in Support of Approval of 15% Rate of Progress Ozone Plan for Maricopa County, September 11, 1997, Appendix B ("Wrona letter"). The reductions from the on-road motor vehicle controls are calculated from this baseline.

b. On-Road Motor Vehicle Controls

Three on-road motor vehicle control measures are credited in the 15 percent demonstration: 7.0 psi RVP, enhanced I/M program, and federal phase I reformulated gasoline. Table 27 lists the SIP-approval status of each of these measures.

TABLE 27
APPROVAL STATUS OF ON-ROAD MOTOR VEHICLE CONTROL PROGRAMS

CATEGORY	APPROVAL STATUS
Arizona Vehicle Emissions Inspection Program	Approved 60 FR 22518 (May 8, 1995)
Arizona Summertime Gasoline Volatility Limitation (7.00 psi RVP)	Approved 62 FR 31734 (June 11, 1997)
Federal RFG - Phase I[1]	Approved June 3, 1997 (62 FR 30260)

[1] On February 10, 1998 (63 FR 6653), EPA has approved Arizona's Clean Burning Gasoline (CBG) Program which is will replace the federal RFG. The Arizona CBG program is designed to more stringent than the federal RFG program; therefore, there will be loss of emission reductions as a result of the transition to the State's RFG program.

Reductions from controls on motor vehicles are not additive, that is, the sum of the reductions from each control analyzed individually is more than the sum of emission reductions from controls analyzed collectively. To account for this effect in this analysis, control measures were analyzed in their order of implementation (7 psi, enhanced I/M, and RFG) with each subsequent measure being analyzed assuming all previous measures are in place.

i. State RVP Limit

The State's 7 psi summertime gasoline volatility limit was fully implemented in 1996. The emission reductions estimated for this measures assume a decrease in RVP limit from the federally-required 7.8 psi to 7 psi.

ii. Enhanced I/M Program

Arizona's vehicle emission inspection program (VEIP) including the enhanced I/M components were approved as elements of the SIP in 1995. The enhanced components include biennial IM240 transient testing for model year 1981 and newer vehicles, more stringent cut points (the tailpipe emissions levels at which cars are failed), pressure and purge testing, increased waiver limits, improvements to the anti-tampering program, and a remote sensing device (RSD) program. These I/M improvements accounted for 50 percent of the emission reductions necessary to show the required ROP. See *1993 Ozone Plan Addendum*, page 3-6. In designing its enhanced VEIP, Arizona relied in good faith on the technical specification in EPA enhanced I/M regulations, 40 CFR part 51, subpart S as promulgated on November 5, 1992 (57 FR 52950).

Arizona began to implement the improvements to its I/M program in early 1995 and quickly determined that EPA's pressure and purge test could not be implemented in practice in I/M testing lanes and suspended the tests. The State subsequently redesigned the pressure test and began implementing it in 1996. No effective purge test, however, is currently available. EPA continues to work to develop a test and Arizona remains committed to implementing a test when it becomes available.

Early testing of the final cut points assumed in the State's 15 percent plan also indicated that they would not work in practice because of unacceptably high false failure rates (i.e., failing cars that should have passed) of up to 50 percent. Arizona is currently working to develop alternatives to the final cut points and intends to begin implementing those alternatives as early as 1999.

Emission reductions credited in the 15 percent demonstration reflect the program as actually implemented in 1996 (that is, without the final cut points or the purge test) and assumes no further improvements. The credit, however, does not include any reductions from the VEIP's remote sensing (RSD) component. Although EPA believes this component is achieving measurable emission reductions, it currently does not have sufficient information to calculate an appropriate credit for it. The State has estimated an emission reduction credit for the enhanced RSD program of 3.7 metric tons per day (Wrona letter, Appendix A).

Table 28 gives the MOBILE5a inputs used to model Arizona's I/M programs.

TABLE 28
COMPARISON OF MOBILE 5 INPUTS
FOR VARIOUS I/M PROGRAM CHANGES

	1990 ACTUAL PROGRAM	1996 ACTUAL I/M PROGRAM		FULLY ENHANCED I/M PROGRAM	
I/M Program	Basic	Pre-MY1981	MY1981 & Newer	Pre-MY1981	MY1981 & Newer
Program start date	1977	1977	1977	1977	1977
Stringency level	28%	28%	28%	28%	28%
Earliest model year of vehicles subject	1967	1967	1981	1967	1981
Latest model year of vehicles subject	2020	2020	2020	2020	2020
Pre-1981 waiver rate (as % of failed vehicles)	10%	4%	4%	4%	4%
1981 and later waiver rate (as % of failed vehicles)	4%	3%	3%	3%	3%
Compliance rate	97%	97%	97%	97%	97%
Program type:	1 - test only	1 - test only	1 - test only	1 - test only	1 - test only
Inspection frequency:	1 - annual	1 - annual	2 - biennial	1 - annual	2 - biennial
Vehicle types subject to inspections:					
LDGV	2-yes	2-yes	2-yes	2-yes	2-yes
LDGT1	2-yes	2-yes	2-yes	2-yes	2-yes
LDGT2	2-yes	2-yes	2-yes	2-yes	2-yes
HDGV	2-yes	2-yes	1-no	2-yes	1-no
Test type	1 -2500/idle	3 - loaded idle	4 - I/M 240	3 - loaded idle	4 - I/M 240
Alternative I/M credits supplied?	11 - no	22- yes	11 - no	22 - yes	11 - no
	--	tech12.d imdata6.d		tech12.d imdata4.d	

TABLE 28 - CONTINUED
COMPARISON OF MOBILE 5 INPUTS FOR VARIOUS I/M PROGRAM CHANGES

	1990 ACTUAL PROGRAM	1996 ACTUAL I/M PROGRAM		FULLY ENHANCED I/M PROGRAM	
I/M Program	Basic	Pre-MY1981	MY1981 & Newer	Pre-MY1981	MY1981 & Newer
User supplied cutpoints?	1 - no	1 - no	2 - yes	1 - no	2 - yes
VOC	--	--	2.00	--	0.80
CO	--	--	30.0	--	15.0
NOx	--	--	3.00	--	1.5
ATP program					
Program start year	1987	1987		1987	
First model year	1974	1974		1974	
Last model year	2020	1980		2020	
Vehicle types subject to ATP inspections					
LDGV	2-yes	2 - yes		2- yes	
LDGT1	2-yes	2- yes		2 - yes	
LDGT2	2-yes	2 - yes		2 - yes	
HDGV	2-yes	2 - yes		2 -yes	
Program type	1 -test only	1 - test only		1 - test only	
Inspection frequency	1 - annual	1 - annual		1 - annual	
Compliance rate	97%	97%		97%	

TABLE 28 - CONTINUED
COMPARISON OF MOBILE 5 INPUTS FOR VARIOUS I/M PROGRAM CHANGES

	1990 ACTUAL PROGRAM	1996 ACTUAL I/M PROGRAM		FULLY ENHANCED I/M PROGRAM	
I/M Program	Basic	Pre-MY1981	MY1981 & Newer	Pre-MY1981	MY1981 & Newer
Inspections performed:					
- air pump system	2 - yes	2 - yes		2 - yes	
- catalyst	2 - yes	2 - yes		2 - yes	
- fuel inlet restrictor	2 - yes	2 - yes		2 - yes	
- tailpipe lead deposit	1 - no	1 - no		1 - no	
- EGR system	1 - no	1 - no		1 - no	
- evaporative emission control system	1 - no	2 - yes		2 - yes	
- PCV system	1 - no	2 - yes		2 - yes	
- gas cap	2 - yes	2 - yes		2 - yes	
Pressure Test	No	Yes		Yes	
Start Year	--	1995		1995	
First model year	--	1981		1981	
Last model year	--	2020		2020	
Vehicle types subject to functional pressure test					
LDGV	--	2 - yes		2 - yes	
LDGT1	--	2 - yes		2 - yes	
LDGT2	--	2 - yes		2 - yes	
HDGV	--	1 - no		1 - no	
Program type	--	1 - test only		1 - test only	
Inspection frequency	--	2 - biennial		2 - biennial	
Compliance rate	--	97%		97%	
Purge Test	No	No		Yes	
Start Year		--		1995	

TABLE 28 - CONTINUED
COMPARISON OF MOBILE 5 INPUTS FOR VARIOUS I/M PROGRAM CHANGES

	1990 ACTUAL PROGRAM	1996 ACTUAL I/M PROGRAM	FULLY ENHANCED I/M PROGRAM
First model year		--	
Last Model Year			2020
Vehicle types subject to functionl pressure test			
LDGV	--	--	2 - yes
LDGT1	--	--	2 - yes
LDGT2	--	--	2 - yes
HDGV	--	--	1 - no
Program type	--	--	1 - test only
Inspection frequency	--	--	2 - biennial
Compliance rate	--	--	97%

iii. Phase I Federal Reformulated Gasoline Program

The federal reformulated gasoline program (RFG) became effective in the Phoenix area at the retail level on August 4, 1997. 62 FR 30260 (June 3, 1997).

Arizona has adopted its own Clean Burning Gasoline (CBG) Program to replace the federal RFG program beginning in June, 1998. EPA has recently approved that program (63 FR 6653 (February 10, 1998)) and Arizona has requested to opt-out of the Federal RFG program should EPA grant final approval to the CBG program. Since the State's program has been designed to achieve more emission reductions than available under EPA's RFG regulations, there will be no loss of emission reductions as the Phoenix area transitions from the federal to state program; therefore, for the purposes of this 15 percent demonstration, EPA is granting emission reductions equivalent to those credited above for the federal RFG program to the State's CBG program. Emissions reductions from Arizona's CBG program that are in excess of those credited above may be used by the State in any future rate-of-progress demonstrations.

c. Calculation of On-Road Emission Inventory

On-road motor vehicle emission factors are generated using EPA's MOBILE5a model (3/29/93 version). To generate the on-road emissions inventory, several steps are necessary.

Step 1 -- Generate Composite On-Road Emission Factors

To generate on-road motor vehicle emission factors, MOBILE5a is run twice, once with I/M and once without I/M, for each control strategy being analyzed. Two runs are necessary because 10.4 percent of the vehicle fleet in the Phoenix nonattainment area is not subject to I/M. The I/M and non-I/M runs are weighed together (89.6 percent I/M and 10.4 percent non-I/M) to generate the composite emission factor.

Composite emission factors for each of the eight vehicle classes (light duty gasoline vehicles, light duty gasoline trucks (1 and 2), heavy duty gasoline trucks, light duty diesel vehicles, light duty diesel trucks, heavy duty diesel trucks, and motorcycles) are generated for six different speeds (20, 30, 30.3, 36.7, 55.7, and 59.7 mph). These speeds represent the average speeds on the principal roadway classifications (known as functional classes) found in the nonattainment area: urban freeway and expressway, principal arterial, minor arterial, collectors and local roads; rural freeway and expressway, principal arterial, minor artierial, collectors and local roads.

Table 29 lists the MOBILE5a runs used to generate the on-road emission inventory for the control strategies analyzed in the 15 percent demonstrations. The input parameters for these MOBILE5a runs are identical except for fuel parameters (RVP levels and RFG), I/M program parameters, and year of analysis. All runs were made for July 1 of the year of analysis using Phoenix area vehicle registration data and diesel sales fractions and assuming ambient temperature of 98.8F and a temperature range of 80F to 104F. These inputs are identical to the ones used in the base year inventory.

Sample input and output files and composite emission factor calculations can be found in Appendix 6.

TABLE 29
MOBILE5A RUNS

OPTIONS	7/1 YEAR	FUEL		I/M PROGRAM PARAMETERS		
		RVP	RFG	I/M	FINAL CTPTS	PURGE
1996 1990 I/M 7.8 RVP (9690im78)	1996	7.8	None	1990 actual	No	No
1996 no I/M 7.8 RVP (96noim78)	1996	7.8	None	1990 actual	No	No
1996 1990 I/M 7.0 RVP (9690im70)	1996	7.0	None	1990 actual	No	No
1997 1990 I/M 7.8 RVP (9790im78)	1997	7.8	None	1990 actual	No	No
1997 no I/M 7.8 RVP (97noim78)	1997	7.8	None	1990 actual	No	No
1997 1990 I/M 7.0 RVP (9790im70)	1997	7.0	None	1990 actual	No	No
1998 1990 I/M 7.8 RVP (9890im78)	1998	7.8	None	1990 actual	No	No
1998 no I/M 7.8 RVP (98noim78)	1998	7.8	None	1990 actual	No	No
1998 1990 I/M 7.0 RVP (9890im70)	1998	7.0	None	1990 actual	No	No
1999 1990 I/M 7.8 RVP (9990im78)	1999	7.8	None	1990 actual	No	No
1999 1990 I/M 7.0 RVP (9990im70)	1999	7.0	None	1990 actual	No	No
1999 no I/M 7.8 RVP (99noim78)	1999	7.8	None	1990 actual	No	No

TABLE 29 - CONTINUED
MOBILE5A RUNS

OPTIONS	7/1 YEAR	FUEL		I/M PROGRAM PARAMETERS		
		RVP	RFG	I/M	FINAL CTPTS	PURGE
1996 actual (96actual)	1996	7.00	None	1996 actual	No	No
1996 actual, no I/M (96act_no)	1996	7.00	None	None	No	No
1997 no additional controls (97actual)	1997	7.00	None	1996 actual	No	No
1997 no additional controls, no I/M (97act_no)	1997	7.00	None	None	No	No
1998 no additional controls (97actual)	1998	7.00	None	1996 actual	No	No
1998 no additional controls, no I/M (97act_no)	1998	7.00	None	None	No	No
1999 no additional controls (99actual)	1999	7.00	None	1996 actual	No	No
1999 no additional controls, no I/M (99act_no)	1999	7.00	None	None	No	No
RFG 1997 impact (97RFG)	1997	7.00	Fed RFG I	1996 actual	No	No
RFG 1997 impact, no I/M (97RFGno)	1997	7.00	Fed RFG I	None	No	No
RFG 1998 impact (98RFG)	1998	7.00	Fed RFG I	1996 actual	No	No
RFG 1998 impact, no I/M (98RFGno)	1998	7.00	Fed RFG I	None	No	No
RFG 1999 impact (99RFG)	1999	7.00	Fed RFG I	1996 actual	No	No
RFG 1999 impact, no I/M (99RFGno)	1999	7.00	Fed RFG I	None	No	No

Step 2 -- Calculate Total On-Road Emissions

For each road functional class (i.e., speed)/vehicle class combination, the appropriate composite emission factors is multiplied by the fraction of all VMT attributed to that vehicle type and total VMT for the roadway classification. This generates the total emissions from this vehicle

class on that classification of roadway in the nonattainment area. Total on-road emissions are the sum of this calculation for each roadway/vehicle class.

Samples of the spread sheets showing this calculation can be found in Appendix 6.

d. Summary of On-Road Emissions Inventory

Table 30 presents the on-road emission inventory for the Phoenix ozone nonattainment area after implementation of each of the major control strategies.

TABLE 30
TOTAL ON-ROAD EMISSIONS, JULY 1
(METRIC TONS PER DAY)

CONTROL	1996	1997	1998	1999
FMVCP/7.8 psi/1990 I/M	108.4	104.0	100.2	96.7
7.0 psi RVP	93.7	90.6	87.1	84.2
Enhanced I/M (w/o RSD)	90.4	88.0	84.2	80.6
Phase I RFG	--	83.7	79.1	75.9

D. 15 Percent Rate of Progress Demonstration

The target levels of emissions needed for the Phoenix area to show the required 15 percent ROP for the years 1996, 1997, 1998, and 1999 are given in Table 12 and reproduced in Table 31 below. To show that the area meets the 15 percent ROP requirements net of growth, projected total anthropogenic emissions including growth expected through 1996 must be at or below these calculated target levels.

TABLE 31
TARGET LEVEL OF EMISSIONS
NEEDED TO SHOW 15 PERCENT ROP
(VOC EMISSION IN METRIC TONS PER DAY)

YEAR	TARGET LEVEL OF EMISSIONS
1996	236.1
1997	233.2
1998	232.5
1999	231.1

Control emission levels by category for 1996 through 1999 are given in Table 32. As seen in Tables 32 and 33, a required 15 percent reduction is shown by April 1, 1999. MOBILE5a runs are for July 1 of the indicated year. Values for other dates are interpolated from these July 1st outputs.

TABLE 32
TOTAL CONTROLLED EMISSION LEVELS
JULY 1
(METRIC TONS PER DAY)

CATEGORY	1996	1997	1998	1999
Stationary point	18.2	18.2	18.2	18.2
Stationary area	97.7	97.7	93.3	93.3
Non-road mobile	51.2	46.6	44.1	42.6
On-road mobile	90.4	83.7	79.1	75.9
Total	257.5	246.2	234.7	230.0
Target	236.1	233.2	232.5	231.1
Over/under	21.4	13.0	2.2	-1.1

TABLE 33
TOTAL CONTROLLED EMISSION LEVELS
INTERPOLATED FOR JANUARY 1 AND APRIL 1, 1999
(METRIC TONS PER DAY)

CATEGORY	July 1, 1998	JANUARY 1, 1999	APRIL 1, 1999	JULY 1, 1999
Stationary point	18.2	18.2	18.2	18.2
Stationary area	93.3	93.3	93.3	93.3
Non-road mobile	44.1	43.4	43.0	42.6
On-road mobile	79.1	77.5	76.7	75.9
Total	234.7	232.4	231.2	230.0
Target	232.5	231.8	231.5	231.1
Over/under	2.2	0.6	-0.3	-1.1

IV. "As Soon As Practicable" Demonstration

CAA section 182(b)(1) requires that all moderate and above ozone nonattainment areas prepare plans that provide for a 15 percent VOC emission reduction by November 15, 1996. Since this deadline has passed, in order to demonstrate that the Phoenix area has met the CAA section 182(b)(1) requirement, it must be demonstrated that the 15 percent reduction will be achieved as soon as practicable by showing that the applicable implementation plan contains all VOC control measures that are practicable for the Phoenix area and that meaningfully accelerate the date by which the 15 percent level is achieved. Measures that provide only an insignificant additional amount of reductions or could not be implemented soon enough to meaningfully advance the date by which the 15 percent is demonstrated are not required to be implemented to meet this test. See *Note,* John Seitz and Margo Oge, "Date by which States Need to Achieve all the Reductions Needed for the 15 Percent Plan from I/M and Guidance for Recalculation," August 13, 1996, and *Memorandum,* John S. Seitz and Richard B. Ossias, Deputy Associate General Counsel to Regional Air Division Directors; "15 Percent VOC SIP Approvals and the 'As Soon As Practicable' Test," February 12, 1997.

For the purposes of this 15 percent demonstration only, EPA is interpreting "significant emission reduction" to be equal to or more than one-half of one percent (0.5 percent) of the total emission reduction needed to meet the 15 percent ROP requirement in 1999 for the Phoenix nonattainment area. One-half of one percent of the 96.4 metric tons (from Table 12) needed to meet the 15 percent ROP is 0.5 metric tons per day.

For the purposes of this 15 percent demonstration only, EPA is also interpreting "to

meaningfully accelerate the date by which the 15 percent is demonstrated" to mean three or more months. Because April 1 is before the June 1 start of the Phoenix ozone season, the ambient air quality benefit that would be gained by advancing the demonstration date by less than three months in advance of April 1 would not justify the implementation of additional federal measures in the Phoenix area for the purposes of demonstrating 15 percent. On the other hand, to advance the benchmark demonstration date for the "as soon as practicable" test much more than three months (that is, before January 1, 1999) would leave so little time between the projected effective date of this action (July 1, 1998) and the benchmark demonstration date that no measure could be reasonably implemented in that short time period. Based on this reasoning, EPA believes that three months is an appropriate benchmark for this "as soon as practicable" test in this case. See also response to comment 7 in section V of this TSD.[6]

EPA analyzed a number of control measures to determine if the 15 percent ROP demonstration could be advanced before April 1, 1999. These measures included ones recommended by EPA (see "Sample City Analysis Comparison of Enhanced I/M Reductions Versus Other 15 Percent ROP Plan Measures," E.H. Pechan and Associates, Inc., December 12, 1996 ("Pechan memo")[7]), by the State and Territorial Air Pollution Program Administrators/ Association of Local Air Pollution Control Officials (see "Meeting the 15-Percent Rate-of-Progress Requirement Under the Clean Air Act: A Menu of Options," STAPPA/ALAPCO, September 1993 ("STAPPA/ALAPCO"), and in the *Report of the Governor's Air Quality Strategies Task Force* (December 2, 1996) ("*1996 Governor's Task Force*"), and the *Reanalysis of the Metropolitan Voluntary Early Ozone Plan*, ADEQ et al, October 1997 ("*Reanalysis of the VEOP*"). Table 33 presents the list of measures and EPA's analysis of each measure.

[6] Where EPA found a measure to have de minimis emission reductions or to not advance the demonstration date, EPA did not also evaluated the measure to determine if it is available to EPA, that is, whether EPA has the legal authority and resources necessary to reasonably implement the measure.

[7] The Pechan memo contains many errors in regards to Phoenix. In determining emissions in specific categories, the memo relied on a national inventory instead of the more accurate State-developed inventory. This reliance on national inventories results in the memo projecting emission reductions in several source categories that are significantly higher than the State's estimate of total emissions in the category. For example, the memo estimated an emission reduction from a ban on open burning of 3.08 *tons* per day although the State's inventory includes only 66 *pounds* per day in this category. Additionally, since the State's 15 percent plan did not specifically identify a number of controls already adopted in the area (such as architectural coatings, stage II vapor recovery, graphic arts, and the area's loaded-mode I/M testing), the emission reductions for these categories are also greatly overstated in the Pechan memo because the memo assumed no controls or lesser controls on these source categories than actually exist.

TABLE 34
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Stationary Source Controls			
Petroleum-based dry cleaning	Pechan memo, p. 3	0.00	Pechan report estimates a potential reduction based on SCAQMD Rule 1102 of 1.12 engt/d (1.02 mt/d). This reduction is 10 times the 1996 baseline inventory of 0.11 english tons per day for this source category. MCESD's Rule 333 (Petroleum Solvent Dry Cleaning) is already similar to SCAQMD Rule 1102 (Petroleum Solvent Dry Cleaning). Maximum potential emission reduction is approximately 0.04 mt/d calculated assuming a very unlikely additional 34% (with 80% RE) reduction if MCESD rule fully conformed with Rule 1102. Emission reductions are insignificant. Implementation would require addition of add-on controls, minimum implementation time would be at least 6 months to provide time for design, procurement, installation, and testing of the required control equipment; therefore, reductions could not occur until after January 1999.
Municipal landfills	Pechan memo, p. 4. STAPPA/ALAPCO, p. 156.	0.00	Estimated 79% reduction from point sources based on national rule (Pechan, p. 4) which is applicable only to point sources. There are no potential reductions for Phoenix from the national rule since the inventory includes no point landfill sources. Area sources are uncontrolled by national rule but account for only 0.61 metric tons per day. At 79% control, this would result in an emission reduction of 0.48 metric tons assuming all landfills are subject (not all landfills would be subject). Since control requires the installation of gas collection and disposal equipment, it is very unlikely measure could be implemented by January 1, 1999 on smaller sources. MCESD's Rule 321 (Municipal Solid Waste Landfill) incorporates by reference EPA's National Performance Standards for Municipal Solid Waste Landfills) (40 CFR part 60, subpart WWW).

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Treatment, Storage and Disposal Facilities (TSDF)	Pechan memo, p. 2. STAPPA/ALAPCO, p. 214.	0.00	1990 Base year inventory contains no emissions in this source category; therefore, no potential emission reduction creditable in 15 percent plan.
Stage I vapor recovery including addition of PV vents	Pechan memo, p. 2 STAPPA/ALAPCO, p. 217.	0.00	PV valves are already required as part of State's Stage I/II vapor recovery rules and included in the 15 percent plan; therefore no additional emission reductions are available from this measure.
Graphic Arts -- Web offset lithography	Pechan memo, p. 3. STAPPA/ALAPCO, p. 169.	0.00	MCESD's Rule 337 (Graphic Arts) already covers category, meets national ACT, and is included in the 15 percent plan. EPA considers ACT to be practicable level of control for this source; therefore no additional emission reductions are available from this measure.
Graphic Arts -- other	Pechan memo, p. 3. STAPPA/ALAPCO, p. 138	0.00	MCESD's Rule 337 (Graphic Arts) already covers category and is included in the 15 percent plan; therefore no additional emission reductions are available from this measure.
Marine vessel loading	Pechan memo, p. 3. STAPPA/ALAPCO, p. 163	0.00	This source category (the loading of commercial ships in port) is not represented in the Phoenix area.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Degreasing	Pechan memo, p. 3. STAPPA/ALAPCO, p. 131. *1996 Governor's Task Force*, p. III-65. *Reanalysis of the VEOP*, p. 6-46.	0.00	Pechan memo estimates a 30% reduction (80% RE) modeled on SCAQMD's Rule 1171 (Solvent Cleaning) (p. 3) with a potential reduction of 8.60 engt/d (7.8 mt/d) in Maricopa County. This reduction estimate assumes no rule regulating emissions from solvent cleaning is in place; however, MCESD Rule 331 already regulates solvent cleaning operations. MCESD is currently workshopping a revision to this rule to further restrict emissions from industrial solvent cleaning operations. ADEQ estimates reduction of 2.88 mt/d in 1999 from further controls on industrial solvent cleaning operations. *(Reanalysis of the VEOP*, p. 6-47). Emission reductions could not be achieved earlier than January 1, 1999; therefore, measure could not meaningfully advance 15 percent demonstration any earlier than the current projection of April 1, 1999. Note that EPA's MACT for halogenated solvent cleaning (40 CFR part 63, subpart T) also controls emissions from this category (with implementation deadline of 12/2/97); however, no emission reduction has been estimated.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Pesticides	Pechan, p. 3 STAPPA/ALAPCO, p. 176.	0.00	Potential controls on this source category are unlikely until after 1999 because of the complexity involved in regulating pesticides and the number of products on the market. See Pechan memo, p. 3. STAPPA/ALAPCO recommends limiting application of pesticides during the ozone season (p. 175)-- a strategy not applicable prior to the June, 1999 (the start of the ozone season in Phoenix) and requiring lowest VOC-emitting alternatives. Neither strategy is implementable in the 1998 ozone season because of inadequate time for pesticide users to find alternatives. More research would be needed to determine if these strategies are practicable at any time for the Phoenix area.
Architectural and industrial maintenance coatings	Pechan, p. 4. STAPPA/ALAPCO, pp. 88 and 142 Reanalysis of the VEOP, p. 6-31	0.11	MCESD already has in place Rule 335 which limits the VOC content of a number of architectural/industrial maintenance coatings. Emission reductions from this rule are already assumed in the 15 percent demonstration. National rule is more stringent in several categories than Rule 335 and is expected to require compliance by late 1998. Emission reductions from the national rule are already assumed in the 15 percent plan. Changes to SCAQMD's Rule 1113 affect the lacquers, traffic coatings, and multi-color coating categories in 1998. All other limit changes are in 2001 or later. ADEQ estimates 1999 emission reductions from SCAQMD rule change to be 0.51 metric tons per day (*Reanalysis of the VEOP*, p. 6-32); reductions from a change in traffic coatings limit is already included in national AIM rule and estimated to be 0.4 metric tons per day (see Table 4-4 in Appendix 4). Total reductions from balance of SCAQMD rule is thus 0.51 - 0.4 or 0.11 metric tons per day which is insignificant.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Wood Coatings	Pechan, p. 4. STAPPA/ALAPCO, p. 227.	0.00	MCESD Rules 342 & 346. Rules meet RACT requirements. Emission reductions already included in 15 percent demonstration.
Consumer Products	Pechan, p. 4 STAPPA/ALAPCO, p. 182. *Reanalysis of the VEOP*, p. 6-153	0.23	Reduction from national rule are already assumed in the 15 percent plan. Potential additional reduction available by January 1, 1999 through adoption of CARB consumer products rule are 0.23 mtpd (see Table 35) and are de minimis.
Petroleum products transport/marine vessels	Pechan memo, p. 4.	0.00	Source category not represented in Maricopa County.
Stage II vapor recovery	Pechan memo, p. 4. STAPPA/ALAPCO, p. 196	0.00	Emission reductions from stage II vapor recover are already included in the 15 percent plan. NOTE: reduction estimate in Pechan report assumes no controls are in place.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Cutback asphalt	Pechan memo, p. 4 *Reanalysis of the VEOP*, p. 6-29.	0.00	MCESD Rule 340 (Cutback and Emulsified Asphalt) adopted in 1988. This rule contains the same emission limitations as SCAQMD's Rules 1108 (Cutback) and 1108.1 (Emulsified). 1990 base year emission estimates already included this level of control. Since there are no currently available alternatives to cutback asphalt, restriction would have to be on time of use during ozone season rather than simple elimination. ADEQ estimates reduction to be 0.92 metric tons per day in 1999 (*Reanalysis of the VEOP*, p. 6-30) This is an ozone season control only; therefore, implementation would occur no earlier than June 1, 1999. Implementation during 1998 would likely not be feasible because insufficient lead time between 7/1/98 effective date of this rule and the end of the ozone season to provide necessary outreach to regulated community and to give them time to make the necessary business adjustments (e.g., redo construction scheduling) needed to comply with a time limit.
Open burning	Pechan memo, p. 4.	0.03	MCESD Rule 314 (Open Outdoor Fires) already bans open burning in all but limited circumstances and to when meteorological conditions are favorable for rapid dispersion. This would be an ozone season only control. 1996 inventory is estimated to be 66 pounds per day. Estimated reductions assume a complete ban on all burning during ozone season. Even if a complete ban were considered a reasonable measure, emission reductions are de minimis.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Adhesives (industrial, commercial, and consumer)	Pechan memo, p. 5. STAPPA/ALAPCO, p. 71	0.00	MCESD Rule 334 already provides limits for some industrial adhesives. SCAQMD Rule 1168 limits VOC content in a number of adhesives including many of the adhesives used by the building industry; these adhesives are regulated under the national consumer products rule. In April 1997, SCAQMD Rule 1168 was amended to delay some of the final VOC limits until 1/1/03 from 1/1/98. National AIM rule also includes a number of adhesive limits.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Aerosol paints	STAPPA/ALAPCO, p. 76	0.26	Estimated national emissions estimate is 58,521 metric tons per year (60 FR 15264, March 23, 1995; Consumer and Commercial Products: Schedule for Regulation). Assume emissions are distributed on a per capita bases, Maricopa County emissions would be approximately 2.6 million/260 million x 58,521 metric tons per year = 585.2 mt/yr or 1.6 mt/day. Maximum reduction is 20 percent at 80 percent rule effectiveness or 0.26 mt/day. Emission reductions are insignificant.
Aerospace	STAPPA/ALAPCO, p. 79	0.00	Category regulated by MCESD Rule 336 and Aerospace MACT rule (40 CFR part 63, subpart GG). No additional reductions available.
Autobody refinishing	STAPPA/ALAPCO, p. 93	0.00	National autobody refinishing rule already included in 15 percent demonstration. No additional reductions available.
Bakeries	STAPPA/ALAPCO, p. 103	0.00	Source category already covered by MCESD Rule 343 and included in 15 percent demonstration.
Commercial ethylene oxide sterilization	STAPPA/ALAPCO, p.	0.00	There is a National MACT standard covering this source category (40 CFR part 63, subpart O). Implementation of MACT standard has been suspended (62FR64736 (December 7, 1997)) because of safety concerns; therefore, emission reductions from this source by January 1, 1999 are very unlikely.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Industrial wastewater treatment plants/POTWs	STAPPA/ALAPCO, pp. 146 and 182	0.00	Control is achieved by enclosing waste streams. Implementation would require sufficient lead time for design and construction of control systems; therefore, implementation is very unlikely by January 1, 1999. Maximum emission reduction is 0.08 metric/tons per day: Assume 90 percent control. 1996 inventory is 195 pounds per day. At 90 percent control = 176 pounds per day or 0.08 metric tons per day.
Pharmaceuticals	STAPPA/ALAPCO, p. 178	0.00	Control is achieved by capture and destruction of evaporative VOC emissions. Implementation would require sufficient lead time for design, procurement, construction, and testing of control systems, therefore implementation is unlikely by January 1, 1999. Maximum emission reduction is 0.08 metric tons per day. Assumes that 100% control (not practicable), 100% rule effectiveness, and 100% rule penetration. 1996 inventory is 0.08 metric tons per day.
Rule effectiveness improvements	*1996 Governor's Task Force*, p. III-62 & III-68 (Stage II V.) STAPPA/ALAPCO, p. 188	0.00	Measure would require improving rule effectiveness from currently assumed level of 80 percent. Source categories would need to be targeted, non-complying sources identified and corrective action taken before emission reductions could be achieved; therefore, reductions are unlikely prior to January 1, 1999.
Surface coating of plastic parts	STAPPA/ALAPCO, p. 200	0.00	Source category already covered by MCESD Rule 336 and included in 15 percent demonstration.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Textile finishing	STAPPA/ALAPCO, p. 210	0.00	Source category already covered by MCESD Rule 336 and included in 15 percent demonstration.
Volatile organic liquids storage	STAPPA/ALAPCO, p. 220	0.00	Source category already covered by MCESD Rule 350 and included in 15 percent demonstration.
Non-Road Mobile Source Measures			
Non-road engine standards	STAPPA/ALAPCO, p. 52. *1996 Governor's Task Force*, p. III-36 *Reanalysis of the VEOP*, p. 6-34	0.00	15 percent demonstration already includes reductions from national non-road engine standards. Reductions are achieved through retirement of older equipment and purchase of new equipment, therefore, emission reductions from new emission standards are not instantaneous but accumulate over time. Even if new standards could be established by January 1, 1999, emission reductions would not occur until after that date. Arizona already has legislative authority to adopted California's on-road standards, A.R.S. 49-542.04. No additional emission reductions by January 1, 1999.
RFG in non-road engines	Pechan memo, p. 3 *Reanalysis of the VEOP*, p. 6-18	0.00	Reductions from Phase I RFG in non-road engines already included in 15 percent demonstration; therefore no additional emission reductions are forthcoming from this measure.
Voluntary lawn mower replacement program	*1996 Governor's Task Force*, p. III-47 *Reanalysis of the VEOP*, p. 6-40	0.00	Program has been adopted and funded at State level. 1997 HB 2237 directed Maricopa County to develop and administer a program and with $1,000,000 state wide funding. See *VEOP*, p. B-20.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
On-Road Motor Vehicle Controls			
I/M Program	Pechan memo, p. 5. STAPPA/ALAPCO, p. 17.	0.00	Current I/M program enhanced to the extent practicable at this time; no additional enhancement available (see below) that could be implemented by EPA and achieve emission reduction by January 1, 1999. Program assumed in 15 percent demonstration. No additional emission reductions
Upgrade I/M Program:			NOTE: In order for EPA to implement an I/M program, it would need to design the program and contract for its implementation and, following letting of the contract, for the contractor to construct/obtain testing facilities, hire and train staff, and notify vehicle owners of the testing requirement giving them a reasonable period in which to comply. As result, even if EPA had the program fully designed and the request for proposal for the contract ready to go on promulgation of this rule, it would be impossible for the rest of the steps to be completed by January 1, 1999.
Vehicle I/M purge test	*Reanalysis of the VEOP*, p. 6-5	0.00	Functional purge test unavailable at this time and unlikely to be available by January 1, 1999. See section III.C.3.b.ii of this TSD.
Registration enforcement	*1996 Governor's Task Force*, p. III-12	0.00	Estimated additional 41,000 vehicles would be tested for a total emission reduction of 0.43 english tons/day (0.39 metric tons./day). Full reductions would only be realized once all these cars had gone through one cycle of I/M testing which takes two years; therefore, even if a program to identify vehicles and get them inspected could be initiated by EPA by 1/1/99 (which is extremely unlikely), emission reductions would not occur instantaneously.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Tougher cutpoints for IM240 testing	*1996 Governor's Task Force*, p. III-18	0.00	Emission reductions are uncalculable until final cutpoints/alternative test are identified; however, full reductions would only be realized once all these cars had gone through one cycle of I/M testing which takes two years. Identification of more stringent cutpoints/alternative testing protocols is continuing.
IM240 testing of constant 4-wheel vehicles	*1996 Governor's Task Force*, III-21.	0.00	Program already being implemented at local level. No additional emission reductions available.
Eliminate I/M waivers for super emitters	*Reanalysis of the VEOP*, p. 6-7		Full reductions would only be realized once all these cars had gone through one cycle of I/M testing which takes two years; therefore, even if a program to eliminate waivers could be initiated by EPA by January 1, 1999, emission reductions would not occur instantaneously.
Expand I/M to include new River and Apache Junction/expansion of Area A Boundaries.	*1996 Governor's Task Force*, p. III-23 *Reanalysis of the VEOP*, p. 6-7		Full reductions would only be realized once all these cars had gone through one cycle of I/M testing which takes two years; therefore, even if a program to test vehicles in these areas could be initiated by EPA by January 1, 1999, emission reductions would not occur instantaneously. ADEQ evaluated expanding the I/M program to New River and Apache Junction areas as part of the reanalysis of the VEOP and found that it would provide a benefit of 0.42 mtpd by mid-1999. See *Reanalysis of the VEOP*, p. 6-10. Thus, the measure would result in de minimis reductions.
Extension and modification of existing state alternative fuel vehicle tax incentive program	*Reanalayis of the VEOP*, p. 6-12	0.00	Changes to tax code (federal or state) are not available to EPA.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Reformulated Gasoline	Pechan memo, p. STAPPA/ALAPCO, p. 23 *1996 Governor's Task Force*, p. III-27 *Reanalysis of the VEOP*, p. 6-18	0.00	Program already adopted and assumed in 15 percent demonstration. The State's CBG program has approved and should achieve emission reductions greater than assumed in this 15 percent demonstration in both 1998 and 1999.
CA LEV Program	STAPPA/ALAPCO, p. 35.	0.00	Because this program achieves emission reductions through fleet turnover; little to no emission reductions could be achieved by January 1, 1999 even if the requirement to sell CA LEV was in place prior to January 1, 1999.
Clean Fueled Fleet	STAPPA/ALAPCO, p. 42.	0.00	Because this program achieves emission reductions through fleet turnover; little to no emission reductions could be achieved by January 1, 1999 even if the requirement went into place prior to January 1, 1999.
TCMs	STAPPA/ALAPCO, p. 56	0.00	The Phoenix area already has in place a wide range of TCMs including employer trip reductions programs, ridesharing program, HOV lanes, public education programs, and traffic signal synchronization. TCMs which involve capital expenditures or construction (e.g., transit expansion, HOV lanes) are not available by January 1, 1999. See also response to comment 13 in section V of this TSD.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Employee Commute Option	STAPPA/ALAPCO, p. 42.	0.00	Program already adopted in the area and SIP approved (63 FR 24434 (May 4, 1998)). All employers of 50 or more must develop and implement trip reduction plans. Measure is not credited in the 15 percent plan although the program is achieving a 3.0% reduction in area-wide VMT. See Annual Report 1996, Maricopa County Trip Reduction Program, MCESD.
Conversion of Municipal Diesel Buses to alt fuels or purchase of alt fueled buses/other retrofit programs for heavy duty fleet vehicles	*1996 Governor's Task Force*, p. III-53 *Reanalysis of the VEOP*, p. 6-14	0.00	The State already has in place a number of mandates for conversion of government fleets to alternative fuels. For example, A.R.S. 9-500.04(C) requires cities/towns and county to develop and implement a plan to convert their fleet to alternative fueled vehicles (through either purchase or conversion) 18% by 12/31/95, 25% by 12/31/96, and 75% by 12/31/2000.
Traffic light synchronization	*Reanalysis of the VEOP*, p. 6-16	0.00	The Phoenix area already has extensive program for traffic light synchronization. Arizona H.B. 2001 (1993), sections 3 (cities) & 24 (county) (A.R.S. 9-500.04(A)(2) and A.R.S. 49-474.01(A)(1)) required synchronization of traffic control signals on all roadways within and across jurisdictional boundaries which have a traffic flow exceeding 15,000 motor vehicles per day and that cities complete synchronization by 9/30/94. See *Addendum*, p. 2-2 H.B. 2237 (1997) provided $500,000 for 1997-1998 and 1998-1999 for this program. See *VEOP*, p. B-33. No additional emission reductions could be achieved
Tax credits to increase effectiveness of the TRP	*1996 Governor's Task Force*, p. III-49	0.00	Provision of tax credits are beyond EPA's authority. Measure is not practicable to EPA.

TABLE 34 - CONTINUED
EVALUATION OF MEASURES FOR THE "AS SOON AS PRACTICABLE" TEST
POTENTIAL ADDITIONAL EMISSION REDUCTIONS BY JANUARY 1, 1999

MEASURE	CITE	EMISSION REDUCTIONS (MT/D)	COMMENTS
Voluntary passenger-vehicle retrofit program	*1996 Governor's Task Force*, p. III-43	0.02	Measure provides subsidies for installation of emission upgrade kit (catalyst). Program would require lead time to develop and then rely on voluntary action to have cars retrofitted. Estimated reduction is 9 tons per year or 9/365 = 0.02 tons per day assuming 400 cars are retrofitted, an unlikely number by January 1, 1999. (*1996 Governor's Task Force*, p. III-43)
Voluntary vehicle retirement.	*1996 Governor's Task Force*, p. III-45 STAPPA/ALAPCO, p. 64 *Reanalysis of the VEOP*, p. 6-50	0.00	Because of cost (a 4000 vehicle a year program would cost $4 million @$1000 per car, *1996 Governor's Task Force*, p. III-46) program not practicable to EPA especially given its small VOC reduction potential, 0.4 tons per day.
CARB diesel	Comment on proposal	0.00	*The Report of the Governor's Air Quality Strategies Task Force,* (February 17, 1998) states that CARB diesel fuel standards would reduce Phoenix VOC emissions by 7.1 mtpd in 1999; however, it also states that implementation of this measure would require at least two years and thus could not occur prior to mid-2000, more than a year after the April 1, 1999 demonstration date for the 15 percent ROP. The State's consultant concluded that the two-year implementation schedule was the minimum necessary after reviewing the refining capacity available to produce CARB diesel fuel for the Phoenix market. See p. 77 of the report. Since EPA has no grounds to dispute the consultant's conclusions (which were endorsed by the Task Force) regarding the minimum implementation schedule for CARB diesel, it finds the measure would not advance the date by with the 15 percent ROP would be met.

V. Reponses to Public Comments Received on the Proposed Action

EPA received only one set of comments on its proposed determination that the Phoenix, Arizona ozone nonattainment area has in place sufficient control measures to meet the 15 percent rate of progress (ROP) requirement in Clean Air Act section 182(b)(2). These comments were submitted by the Arizona Center for Law in the Public Interest (ACLPI) on behalf of the plaintiffs in *American Lung Association of Arizona, Inc. et al v. Browner*, CIV 96-1856 PHX ROS. See Letter, David S. Baron, Assistant Director, ACLPI to Frances Wicher, EPA Region 9, February 24, 1998, found in the docket for this rulemaking.

***Comment 1*: ACLPI claims that EPA's proposal is flawed because it does not propose FIP measures as an alternative to approving a State 15 percent plan and without such an alternative proposal, EPA's decision making process here will be inherently biased, unfair and violative of the Administrative Procedure Act. ACLPI asserts that EPA must either approve the State's 15 percent demonstration or face contempt of court for not timely promulgating a FIP and as a result the Agency cannot be totally objective about whether to approve the State's 15 percent showing. ACLPI states that the only way to negate this bias and prejudgment is for EPA to immediately propose a FIP, so that it has an alternative to approval of the State's demonstration.**

Response 1: This comment, as well as others discussed below, reflects a basic misapprehension of the nature of EPA's January 26, 1998 proposal. Contrary to ACLPI's claims, EPA did not propose to approve or otherwise act on Arizona's 15 percent SIP. Rather, the Agency proposed a 15 percent ROP FIP under its federal planning authority in CAA section 110(c).[8]

Nowhere in the proposal did EPA state or otherwise indicate that it was proposing to approve the State's 15 percent plan. In fact, in the section discussing its FIP obligation under *ALAA*, EPA concluded that it did "not have in front of it a complete state submittal containing a revised 15 percent ROP demonstration that it could act on without additional analysis, public hearing and adoption *by the State*." 63 FR 3688 emphasis added. In the conclusion section of the proposal, EPA stated that it was acting pursuant to its CAA section 110(c) authority in proposing a determination that the Phoenix metropolitan area has in place sufficient control measures to meet the 15 percent ROP requirement. See 63 FR 3692. CAA section 110(c) provides EPA's authority to promulgate FIPs. In contrast, its SIP approval authority resides in section 110(k).

The proposed FIP consists of a *federal* demonstration that already-approved State and federal control measures, combined with already-proposed federal measures, are sufficient to provide for a 15 percent ROP in the Phoenix area as required by CAA section 182(b)(1)(A)(i) and that there are no other measures which would meaningfully advance the date by which the 15

[8]EPA did at the same time propose to approve the State's 1990 Base Year Emission Inventory. This inventory was required by CAA section 182(a)(1) and was submitted separately from the 15 percent plan. See 63 FR 3688.

percent ROP will be met. See 63 FR 3692. As a consequence of this finding, EPA did not, and was not required to, propose any additional federal measures.

EPA notes that this is not the first time it has promulgated an Arizona FIP that consists only of a demonstration that existing State and federal measures were adequate. In 1991, EPA promulgated attainment and maintenance demonstrations for the Pima County (Tucson), Arizona carbon monoxide (CO) nonattainment area that consisted solely of a demonstration that existing approved State and federal measures were adequate for expeditious attainment and long-term maintenance of the CO standard in the area and that no additional federal measures were necessary. See 56 FR 5458, 5470 (February 11, 1991).

***Comment 2*: ACLPI asserts that if EPA found that the State has not submitted a complete 15 percent ROP demonstration, it should have disapproved it on that basis instead of proceeding to supply its own data and analysis to produce a showing on the State's behalf, an approach which conflicts with the Act. ACLPI states that EPA's statutory duty is to approve or disapprove what the state submits and that EPA cannot write a plan and pretend it is the State's. Finally, ACLPI states that Arizona has had more than ample time to submit its 15 percent plan and if the State's demonstration is inadequate, then EPA must disapprove it and adopt a FIP.**

Response 2: As discussed above, EPA proposed a 15 percent ROP demonstration under its federal planning authority in CAA section 110(c) and did not propose any action on Arizona's 15 percent SIP. When acting in place of the State pursuant to a FIP under section 110(c), EPA "stands in the shoes of the defaulting State, and all the rights and duties that would otherwise fall to the State accrue instead to EPA." *Central Arizona Water Conservation District v. EPA*, 990 F.2d 1531, 1541 (9th Cir. 1993). Thus, in preparing this FIP demonstration, it is EPA's responsibility to supply its own data and analyses of that data and to produce the required showing that otherwise would be the responsibility of the State. Thus, the approach EPA took in this rulemaking is fully consistent with the Act

For 15 percent plans, CAA section 182(b)(1)(A)(i) requires that applicable implementation plans provide for VOC reductions of a least 15 percent by November 15, 1996 from 1990 baseline emissions, accounting for growth in emissions after 1990. Because the November 15, 1996 date has passed, the substitute deadline, as discussed in the proposal and below, is "as soon as practicable." See 63 FR 3687. Three elements are necessary to show that the applicable implementation plan provides for a 15 percent ROP: 1) a calculation of the 15 percent ROP target emission level, 2) a set of control measures creditable under section 182(b)(1)(C),[9] and 3) a demonstration that these creditable measures reduce VOC emissions in the area sufficiently to meet the target level as soon as practicable. 57 FR 13498, 13507 (April 16, 1992) and *Memorandum*, John S. Seitz, Director of the Office of Air Quality Planning and Standards, and Richard B. Ossias, Deputy Associate General Counsel to Regional Air Division Directors; "15 Percent VOC SIP Approvals and the 'As Soon As Practicable' Test;" February 12, 1997.

[9]Creditable measures include certain SIP measures, EPA measures, and emission limitations in permits issued under CAA title V operating permit programs.

For the 15 percent ROP FIP it is promulgating, EPA appropriately prepared all three elements itself. First, the Agency calculated the required target emission level following CAA requirements and applicable Agency guidance and policies. This calculation was summarized in the proposal (see 63 FR 3689) and is fully documented in this TSD. Second, EPA identified the set of measures which make up the 15 percent demonstration. These measures are all fully creditable to the 15 percent demonstration and are listed in Table 5 of the proposal. See 63 FR 3690. The fact that all these controls have already been either SIP approved or proposed or promulgated by EPA does not detract from their creditability in this 15 percent plan. There is nothing in either the CAA or EPA policy that requires adoption of new measures in 15 percent plans if there are already sufficient creditable state or federal measures available.[10]

Finally, EPA has shown that this set of measures will result in reductions sufficient to meet the required target emission level as soon as practicable and that there are no other measures that would advance the date by which the target is achieved. Because of this showing, EPA did not need to propose additional federal measures.

EPA did base its proposed determination in part on a reanalysis of the State's plan. This was reasonable given that the State had already prepared an extensive and competent technical evaluation of emission sources in the Phoenix area and the effect of controls on reducing emission from those sources. EPA did, however, modify some of the information it obtained from the State's plan to reflect the actual implementation status of the State's I/M program and the implementation of new federal and state controls. However, a federal plan based on technical information contained in a State plan does not constitute or imply SIP approval of that State plan.

Since no action was proposed in regard to the State's 15 percent ROP plan, comments relating to the appropriate disposition of that plan are not relevant to this rulemaking. EPA notes that it is not required in this instance to disapprove a State plan prior to promulgating a replacement FIP under CAA section 110(c).

EPA acknowledges that it is required by the Act to take action on submitted SIPs. However, at this time inaction on the State's 15 percent plan in no way affects EPA’s promulgation of this FIP.

[10]It is not surprising that there are sufficient measures already in place or soon to be to demonstrate the 15 percent ROP in Phoenix Since 1990 a large number of both national and local measures have been adopted that target the largest sources of VOC emissions in the Phoenix area. These categories are on-road motor vehicles, off-road engines, and stationary area and point sources. 63 FR 3688 (Table 1). For on road motor vehicles, adopted measures include the State's premier I/M program, gasoline volatility controls, and reformulated gasoline. For non-road engines, these measures include new off-road engine standards as well as the new gasoline formulation. For stationary area and point sources, the measures include architectural coating limits, vapor recovery controls at gasoline stations, degreasing controls, consumer products, and a number of other stationary source VOC controls. 63 FR 3690-3691.

***Comment 3*: ACLPI comments that EPA is extending until April 1, 1999 the time for achieving the 15 percent reduction that was supposed to have been achieved by November 15, 1996 and has justified this lengthy extension by adopting several policies that ACLPI asserts are not consistent with applicable case law or the Clean Air Act.**

First, ACLPI states that although it agrees with EPA that *Delaney v. EPA*, 898 F.2d 687, 691 (9th Cir. 1990) supplies the relevant test for compliance once a statutory deadline has passed, it disagrees with the Agency's interpretation that under the *Delaney* case, the appropriate standard is "as soon as practicable." ACLPI notes that the actual phrase used by the *Delaney* court was "as soon as *possible*," using every available control measure and asserts that the difference between "practicable" and "possible" is not merely semantic. According to ACLPI, "practicability," as used in the Act, allows for consideration of various economic and social factors in determining the required speed of progress. ACLPI believes that to say that the pace for compliance after the Clean Air Act deadline has passed is still as soon as "practicable" is to read the deadline out of the statute which is why the *Delaney* court allegedly set a much more stringent test--compliance as soon as possible--for areas that miss a statutory deadline.

Response 3: In *Delaney*, the Ninth Circuit interpreted the Clean Air Act requirement for EPA to develop a CO federal implementation (FIP) attainment plan for two Arizona areas after the passage of the then applicable statutory attainment date of December 31, 1987. The Court concluded that after the passage of that date, "the national ambient air quality standards must be attained as soon as possible with every available measure...." 898 F.2d at 691. The *Delaney* Court arrived at this test by relying on a statement in an EPA guidance document providing that if a state plan's "control measures are not adequate to demonstrate attainment by 1987, additional measures which can be implemented after 1987 must be identified and adopted and attainment must be demonstrated by the earliest possible date....46 Fed. Reg. 7186 (January 22, 1981)."[11] In another part of the opinion concerning reasonably available control measures, the Court noted another EPA guidance document specifying that a control measure would be deemed not reasonably available if it would not advance attainment, would cause substantial widespread and long-term adverse impact, or would take too long to implement. 898 F.2d at 692.

EPA believes that the appropriate interpretation of *Delaney*'s "as soon as possible" test is informed by the Court's acknowledgment of certain limitations on the speed of compliance as expressed in its citation of the guidance related to the scope of reasonably available measures. Therefore, consistently since the Ninth Circuit's opinion, EPA has framed the "as soon as possible" *Delaney* test, in the post-statutory attainment deadline context, to mean "'as expeditiously as practicable,' by a fixed date," and has stated that "[t]he statute does not require measures that are absurd, unenforceable, or impracticable." 55 FR 36458, 36505 (Sept. 5,

[11]Following the *Delaney* opinion, EPA revoked certain portions of this guidance document in order to clarify that the Agency did not intend to require post-1987 plans to include every conceivable control measure. 55 FR 38326 (September 18, 1990).

1990).[12] In addition to applying this interpretation of the *Delaney* test to attainment plans after the passage of the statutory attainment deadline, the Agency has also consistently applied it in its actions on plans that address the 15 percent requirement following the November 15, 1996 statutory deadline for these plans. See, e.g., 62 FR 31343, 31345-31346 (June 9, 1997), approving the 15 percent ROP SIP for Philadelphia; 62 FR 33999, 34000-34001 (June 24, 1997), approving the 15 percent ROP SIP for northern Virginia.

Moreover, EPA notes that one court, while finding *Delaney* not precisely on point for its purpose of fashioning a remedy in a citizen's enforcement action, nevertheless made some instructive observations on the relationship between the two standards. The Court noted that:

> although the Delaney opinion utilized the 'as soon as possible' standard employed by EPA guidelines, it did not do so out of rejection of the 'practicable' standard or out of concern that the two standards differed. Rather it simply had no occasion to compare them. Indeed the Delaney court appeared to blur them when it criticized Arizona for rejecting measures without demonstrating that such measures were 'impracticable' or unreasonable....

Citizens for a Better Environment v. Deukmejian, 746 F. Supp. 976, 985 (N.D. Cal. 1990). The Court went on to observe that:

> [a]s a practical matter, however, no Court will use its equitable powers to impose remedies that are irrational, albeit 'possible.' Thus as long as time is considered paramount, and the term 'practical' is strictly construed in keeping with the purposes of the Act, the 'as expeditiously as practicable' standard should yield no less results than an 'as soon as possible' standard.

The Court concluded that "when properly interpreted, there is no practical difference between the two standards." *Id*. EPA agrees with this assessment.

Furthermore, while EPA believes that it is consistent with the *Delaney* test to take into account socioeconomic factors as described above, the issue is effectively moot with regard to this rulemaking. In proposing, for the purposes of its 15 percent demonstration, that "as soon as practicable" is April 1, 1999, the Agency did not consider any economic or social factors. Rather the factors EPA considered were the Agency's authority and resources to implement a measure, whether the measure provided a significant emission reduction, and whether the measure could be implemented soon enough to meaningfully advance the date by which the 15 percent reduction could be demonstrated. The Agency believes, as discussed above and in response to an additional

[12]In its proposal of an attainment CO FIP for Arizona, EPA restated its interpretation of the *Delaney* test as requiring "a demonstration of attainment as expeditiously as practicable utilizing all measures available to the federal government that are capable of advancing the attainment date, short of those producing absurd results, such as severe socioeconomic disruptions." 55 FR 41204, 41210 (October 10, 1990).

comment below, that the consideration of these factors is entirely appropriate and consistent with both the Clean Air Act and the *Delaney* opinion.

***Comment 4*: ACLPI comments that in its proposed action, EPA asserted that the State need not achieve the 15 percent ROP until April 1, 1999 because a) that is the soonest such reductions will be achieved under the State's adopted programs and various adopted and proposed EPA programs and b) no other measures are available that would reduce VOC emissions by more than 0.5 percent or advance achievement of the 15 percent ROP by three or more months. The Center contends that this analysis is legally flawed because it wrongly places the burden on EPA to disprove the adequacy of the State's effort and that under *Delaney*, the burden is on the State to show that its plan will meet the 15 percent target as soon as possible which the State has not done.**

Response 4: As noted above, EPA did not propose to approve or otherwise act on the State's 15 percent ROP SIP. Rather, pursuant to its FIP authority in CAA section 110(c), EPA proposed its own determination, based on its own calculations, that the Phoenix metropolitan area has in place or will have in place sufficient control measures to meet the 15 percent ROP requirement as soon as practicable. See 63 FR 3692. Under a FIP, the burden correctly falls on EPA to show that the 15 percent target will be met as soon as practicable.

***Comment 5*: ACLPI asserts that there is nothing in the Clean Air Act or *Delaney* that allows de minimis exemptions for percentage reductions or for months of delay.**

Response 5: The inherent authority of administrative agencies to exempt de minimis situations from a statutory requirement has been upheld in contexts where an agency is invoking a de minimis exemption as "a tool to be used in implementing the legislative design when "the burdens of regulation yield a gain of trivial or no value." *Alabama Power Co. v. Costle*, 636 F.2d 323, 360-61 (D.C. Cir. 1979).

In this rulemaking, EPA has invoked this de minimis doctrine for gauging when the promulgation of a new control would or would not contribute to meeting the statutory requirement for a 15 percent ROP in the Phoenix area as soon as is practicable. EPA has interpreted the “as soon as practicable” test to require a showing that the applicable implementation plan contains all VOC control measures that are practicable for the area and that meaningfully accelerate the date by which the 15 percent level is achieved. Measures that provide only an insignificant additional reduction or could not be implemented soon enough to meaningfully advance the date by which the 15 percent is demonstrated are not required to be implemented. See *Memorandum*, John S. Seitz, Director, Office of Air Quality Planning and Standards, and Richard B. Ossias, Deputy Associate General Counsel to Regional Air Division Directors; “15 Percent VOC SIP Approvals and the ‘As Soon As Practicable’ Test;” February 12, 1997.

For determining whether additional measures were necessary for this demonstration, EPA proposed to define "significant emission reduction" to be equal to or more than one-half of one percent (0.5 percent) of the total emission reductions needed to meet the 15 percent ROP requirement in 1999 for the Phoenix nonattainment area, the equivalent of 0.5 metric tons per day

(mtpd). Thus any measures that would result in less than a 0.5 mtpd reduction by April 1, 1999 were considered to yield de minimis reductions and were rejected from further review.

In the context of this rulemaking where the 15 percent ROP will be achieved within one year, 0.5 mtpd is truly de minimis, representing *one two-hundredths* of the emission reductions needed to show the 15 percent ROP. In terms of control requirements, more than 200 of these "de minimis" measures would be needed to demonstrate 15 percent ROP in Phoenix. The federal imposition of a measure or group of measures with so little impact on the ROP demonstration would be nonsensical. Thus a regulation imposing one of these de minimis measures would indeed yield "a gain of trivial or no value." As such, a de minimis exemption is an entirely "appropriate tool to be used in implementing the legislative design" of the CAA's rate of progress and general FIP requirements. *Alabama Power* at 360.

EPA proposed to define "meaningfully accelerate the date by which the 15 percent is demonstrated" as three or more months. EPA has projected that the 15 percent ROP will be demonstrated in the Phoenix area by April 1, 1999. Therefore, if a measure could advance that demonstration date to on or before January 1, 1999, then EPA would consider that the measure meaningfully accelerated the 15 percent ROP. In the proposal, EPA explained its selection of three months as a balance between the environmental benefit of advancing the date and the potential to trivialize the "as soon as practicable" demonstration. 63 FR 3687, 3691.

The 15 percent ROP progress requirement is part of the Act's overall scheme for ozone attainment. In Phoenix, ozone exceedances occur during the hot-weather months of May through October. EPA's proposed three month "de minimis" period (January 1 to April 1) falls well before the beginning of this season and as a result the ozone benefit of additional controls during this period would be at best exceedingly small. Thus, the federal implementation of a measure or measures whose sole effect would be to advance by less than 3 months from April 1, 1999 date on which the 15 percent ROP is met, would clearly yield "a gain of trivial or no value."

EPA does not agree that *Delaney* bars the use of de minimis exemptions. As discussed previously, the *Delaney* court itself recognized limits on its conclusion that once a statutory deadline has passed the new deadline becomes "as soon as possible with all available measures." These limits include not requiring measures that would not advance attainment, would cause substantial widespread and long-term adverse impact, or would take too long to implement. These limits clearly indicate that the *Delaney* court did not expect EPA to impose controls that yield no benefit or a benefit that is outweighed by the regulatory burden. Thus, EPA's use of de minimis exemptions is consistent with *Delaney.*

***Comment 6*: ACLPI further asserts that EPA's standard of 0.5 percent is not de minimis in the current context, stating that this amounts to about 1.2 mtpd--almost double the reductions EPA is claiming credit for from its proposed national rule for industrial and architectural coatings. The Center claims that EPA cannot rationally claim credit for allegedly de minimis reductions while at the same time excusing the State from adopting measures that promise much greater reductions. Finally, ACLPI also claims that the 0.5 percent figure also represents almost four times the "surplus" emission reduction that EPA**

expects will exist as of April 1, 1999 and concludes that by any rational measure, 0.5 percent is not "de minimis" in the current context.

Response 6: As clearly stated in the proposal at page 3691, the amount that EPA considered de minimis is 0.5 mtpd and not 1.2 mtpd as ACLPI claims. This amount is less than the 0.6 mptd that EPA is crediting to the national AIM rule. Nationally, the AIM rule is expected to reduce emissions by 263 mtpd-- hardly a trivial or insignificant amount. 61 FR 32729, 32734 (June 25, 1996). The fact the national AIM rule will have a small impact in Phoenix is the result of the State having already adopted and implemented its own AIM rule. That SIP-approved rule, MCESD Rule 335, is credited with 2.9 mtpd reduction in the 15 percent demonstration. 63 FR 3687, 3690

EPA notes that it has invoked the 0.5 mtpd de minimis criterion only to determine which *new* measures to adopt and not to determine which *existing* measures to credit. Where a measure is already approved and reducing emissions, or is close to promulgation, it makes no sense to forsake it simply because of its small emissions reduction in favor of adopting other measures in its place.

A comparison of the de minimis value with the projected 0.3 mtpd surplus in the 15 percent demonstration is irrelevant. Since no reductions beyond those necessary to meet the ROP target level are required, the availability of measures that could produce reductions greater than the projected surplus is inconsequential.

As discussed previously, EPA is promulgating a FIP and not acting on the State's plan and therefore is not passing judgment on the control measures (or lack thereof) in the State's plan. If the State chooses to use a de minimis standard in determining which measures to adopt, then it will need to establish its own de minimis standard and provide its own rationale for that standard taking into consideration the facts presented in that plan.

***Comment 7*: ACLPI also comments that EPA wrongly tries to justify use of a three month benchmark by referring to how quickly the State could adopt and implement new measures, noting that EPA is under court order to adopt federal measures by May 18, 1998 adequate to produce the required 15 percent. ACLPI asserts that if the State will not act that quickly, then EPA must step in, and given the FIP mandate to EPA, the Agency cannot approve a State 15 percent plan that moves more slowly than EPA itself is required to move.**

Response 7: EPA again notes that it did not propose to approve or otherwise act on the State's 15 percent plan. It, therefore, did not consider how fast the State could adopt and implement new measures in proposing the three-month benchmark. In proposing this benchmark, EPA stated that "to advance the benchmark demonstration date for the 'as soon as practicable' test much more than three months (that is, before January 1, 1999) would leave so little time between the projected effective date of this action (July 1, 1998) and the benchmark demonstration date that no measure could be reasonably implemented in that short time period." 63 FR 3691-3692. This discussion assumed that any measure under consideration would be

promulgated by EPA on May 18, 1998, published in the Federal Register by June 1, 1998, and effective 30 days after publication, or approximately July 1, 1998.

Regardless of whether a rule is implemented by the state or federal government, there is generally a lag time between when a rule is promulgated and when emission reductions actually occur. Implementing agencies, including EPA, must allocate sufficient time to provide compliance outreach and assistance to the regulated community, especially when many small businesses will be subject to a rule as is the case for many of the measures considered.[13] This compliance outreach and assistance effort is not a source of unreasonable delay but rather an exercise in good government to assure effective air pollution control.

Moreover, the practical steps necessary to implement an emission limit also require time. A business must often take a number of steps prior to meeting an emissions limitation such as designing, procuring, installing, and testing control equipment or developing or obtaining new product reformulations. All these implementation steps put a natural limit on how fast emission reductions can be achieved after the promulgation of a measure. In general, at least 6 months to a year is needed between when a rule is adopted and when emission reductions are realized. See for example, "Model Volatile Organic Compound Rules for Reasonably Available Control Technology -- Planning for Ozone Nonattainment Pursuant to Title I of the Clean Air Act," Staff Working Document, OAQPS, U.S. EPA, June 1992 in which 1 year is the usual compliance deadline for emission limitations. It was these implementation considerations that EPA contemplated--and not the rate at which the State could adopt measures--when it proposed the three-month benchmark

***Comment 8*: ACLPI notes that EPA predicts that the State will meet the 15 percent reduction target by April 1, 1999 with just 0.3 tons per day to spare and argues that this is not a credible demonstration given the size of the inventory and the many uncertainties in EPA's emission reduction predictions. ACLPI asserts that the record here shows that emission reductions expected from control measures do not always materialize.**

Response 8: The statutory requirement for 15 percent ROP demonstrations is met when the plan demonstrates that it achieves "at least a 15 percent" reduction. See section 182(b)(1)(A)(i). Neither the Act nor EPA guidance requires 15 percent ROP demonstrations to include a margin of safety; therefore, reductions greater than the minimum amount needed to demonstrate the 15 percent ROP are not required. As a result, the amount of excess emissions in the 15 percent demonstration is immaterial.

Both the base year inventory used to calculate the 15 percent target emission level and the projected emission inventories and emission reduction calculations were prepared using generally-accepted methodologies consistent with Agency guidance. See section III of this TSD. As such, they provide a credible and appropriate basis for the 15 percent demonstration and additional adjustments to account for uncertainties are not warranted or required. EPA notes that it already

[13]See, for example, the requirements for small business compliance assistance programs under section 507 of the Act. These requirements would be applicable to EPA in issuing a FIP.

factored into its 15 percent ROP demonstration available information on the implementation status of the control measures.

Because ACLPI neither explains how the size of the inventory relates to the credibility of the demonstration nor provides specifics on the "many uncertainties in EPA's emission reduction predictions" or instances where the emission reductions may not materialize, EPA is not able to further respond to this comment.

***Comment 9*: ACLPI comments that the State's plan does not contain contingency measures as mandated by section 172(c)(9) of the Act and EPA guidance and such measures must be in the SIP and adequate to compensate for any shortfall in the required rate of progress.**

Response 9: Since the State's plan is not the subject of this rulemaking, this comment is not relevant. Further, EPA is here promulgating a 15% ROP plan that is required under CAA section 182(b)(1); contingency measures are required under a separate provision of the Act, section 172(c)(9).

***Comment 10*: ACLPI comments that EPA proposed to credit 4.4 tons per day in emission reductions from three federal rulemakings that are still at the proposal stage and asserts that such an approach violates the Act and EPA policy. ACLPI supports that assertion by stating that under section 182(b)(1)(c) of the Act, credit can be claimed only for rules "promulgated" by EPA and that EPA policy and the Act also forbid the granting of emission reduction credit for measures that have not been legally adopted. ACLPI further argues that there is no assurance whatsoever that the proposed rules will be adopted in a form and on a schedule that will assure the projected emission reductions and without the credit claimed for these measures, the ROP plan does not demonstrate the required 15 percent reduction and therefore is legally deficient.**

Response 10: Consistent with the Clean Air Act, its policies and its actions on other 15 percent plans, EPA is crediting three proposed national rules in this 15 percent demonstration: consumer products, autobody refinishing and architectural and industrial maintenance coatings. As noted in the proposal, each of these rules are required under CAA section 183(e) and the Agency had recently been sued to enforce the requirement to promulgate these rules. Since the proposal the Agency has agreed to a schedule for their promulgation by August 15, 1998. See lodged consent decree in *Sierra Club v. Browner*, CIV No. 97-984 PLF (D.D.C.).

CAA section 182(b)(1)(A) requires states to submit their 15 percent SIP revisions by November 1993. Section 182(b)(1)(C) provides the following general rule for creditability of emissions reductions towards the 15 percent requirement: "emissions reductions are creditable toward the 15 percent required...to the extent they have actually occurred, as of [November, 1996], from the implementation of measures required under the applicable implementation plan, rules promulgated by the Administrator, or a permit under Title V." CAA section 182(b)(1)(D) further states that certain emissions reductions are not creditable, including reductions from certain control measures required prior to the 1990 Amendments.

These creditability provisions are ambiguous. Read literally, they provide that, although the 15 percent SIPs are required to be submitted by November 1993, emissions reductions are creditable as part of those SIPs only if “they have actually occurred, as of [November 1996]”. This literal reading renders the provision internally inconsistent. Accordingly, EPA believes that the provision should be interpreted to provide, in effect, that emissions reductions are creditable "to the extent they will have actually occurred, as of [November, 1996], from the implementation of [the specified measures]" (the term "will" is added). This interpretation renders the provision internally consistent.

CAA section 182(b)(1)(C) explicitly includes as creditable reductions those resulting from “rules promulgated by the Administrator.” This provision does not state the date by which those measures must be promulgated, i.e., does not indicate whether the measures must be promulgated by the time the 15 percent SIPs were due (November 1993), or whether the measures may be promulgated after this due date.

Because the statute is silent on this point, EPA has discretion to develop a reasonable interpretation under *Chevron U.S.A. Inc. v. NRDC*, 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). EPA believes it reasonable in the first instance to interpret CAA section 182(b)(1)(C) to allow areas to credit reductions from federal measures as long as those reductions are expected to occur by November, 1996 the date for achieving the 15 percent ROP, even if the federal measures are not promulgated by the November, 1993 due date for the 15 percent SIPs.

EPA's interpretation is consistent with the Congressionally-mandated schedule for promulgating regulations for consumer and commercial products, under section 182(e) of the Act. This provision requires EPA to promulgate regulations controlling emissions from consumer and commercial products that generate emissions in nonattainment areas. Under the statutory schedule, by November, 1993--the same date that the States were required to submit the 15 percent SIPs--EPA was to issue a report and establish a rulemaking schedule for consumer and commercial products. Further, EPA was to promulgate regulations for the first set of consumer and commercial products by November, 1995. It is reasonable to conclude that Congress anticipated that reductions from these measures would be creditable as part of the 15 percent SIPs, as long as those reductions were to occur by November, 1996.

EPA has also established specific policies interpreting the Act that allow crediting of these proposed national measures in 15 percent plans. See *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance Coating Rule and the Autobody Refinishing Rule;" November 29, 1994; *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for the 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance (AIM) Coating Rule;" March 22, 1995; *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Regulatory Schedule for Consumer and Commercial Products under Section 182(e) of the Clean Air Act;" June 22, 1995; and *Memorandum*, John S. Seitz, Director of the Office of Air Quality Planning and Standards, and Richard B. Ossias, Deputy Associate General Counsel to Regional Air Division Directors; "15 Percent VOC SIP Approvals and the ‘As Soon As Practicable’ Test;" February 12, 1997.

While this analysis focuses on SIPs, it applies equally to FIPs. As noted before, EPA "stands in the shoes of the State" when promulgating a FIP and all the rights and duties available to a state under the Act become available to EPA in a FIP.

The above analysis also describes statutory provisions that include specific dates for 15 percent SIP submittals (November 15, 1993) and implementation (November 15, 1996). While these dates have expired and new dates for submittal (in this case, promulgation) and implementation have been developed, EPA does not believe that the expiration of the statutory dates, and the development of new ones, invalidates the conclusion that reductions from federal measures promulgated after the date the 15 percent plan is submitted (or promulgated) can be counted toward the ROP demonstration.

Because it has agreed to a schedule in a proposed consent decree to promulgate these national rules by August 15, 1998, EPA intends to promulgate the rules within 3 months of this FIP promulgation and well before the April 1, 1999 15 percent ROP demonstration date. As a result, crediting reductions from these federal measures is also sensible from an administrative standpoint. If it did not credit these national measures, EPA would need to promulgate compensating rules, applicable only to Phoenix, to replace their 4.4 mtpd benefit. EPA has already shown that there are no other measures available that would meaningfully advance the April 1999 date by which the 15 percent ROP is demonstrated in the Phoenix area, thus any additional measures would not result in reductions any sooner than the proposed national rules. Nor would these potential Phoenix-only measures result in any greater reductions creditable to the 15 percent plan since they would simply substitute for the reductions from the national rules.[14] Thus, if it did not credit the national measures, EPA would simply be engaging in a wasteful rulemaking exercise to promulgate measures in May, 1998 that it could almost immediately withdraw when the national rules are promulgated in August, 1998.[15]

The fact that EPA cannot determine precisely the amount of credit available for the proposed national measures does not preclude granting them credit. The credit can be granted as long as EPA is able to develop reasonable estimates of the amount of VOC reductions from the measures EPA expects to promulgate. EPA believes that it is able to develop reasonable estimates, particularly because is has already proposed and taken comment on the measures at issue, and is expecting to promulgate final rules in little less than 3 months. Moreover, the use of

[14]The statutory requirement EPA is fulfilling here is to demonstrate a fixed emission reduction of 15 percent from 1990 base year levels. Emission reductions in excess of this fixed amount are unnecessary. Since EPA has already concluded that the proposed national measures combined with other adopted state and federal measures will result in the required 15 percent ROP as soon as practicable, additional Phoenix-only federal measures are not necessary.

[15]In its rulemakings, EPA strives to take the least intrusive and most sensible regulatory approach that achieves the statutory requirements. In this situation, it made no regulatory sense to ignore these pending national measures (which have already been proposed and have a near-term date for promulgation) that will apply automatically to Phoenix in favor of promulgating wholly new Phoenix-specific measures.

estimated emissions and emission reductions rather than actual measurements is a common and necessary practice in attainment and reasonable further progress demonstrations because actual measurements, even for promulgated measures, are seldom available. For example, EPA's document to estimate emissions, "Compilation of Air Pollutant Emission Factors", January 1995, AP-42), provide emission factors used to estimate emissions from various sources and source processes. AP-42 emission factors have been used, and continue to be used, by states and EPA to determine base year emission inventory figures for sources and to estimate emissions from sources where such information is needed.

This rulemaking is based on the best information currently available to the Agency on the projected reductions from these proposed national rules. If these projected reductions turn out to be greater than the amount it determines to be appropriate after promulgation of the final rules, then EPA will take appropriate action to revise this 15 percent demonstration.

***Comment 11*: ACLPI argues that contrary to EPA's assertion there are a number of additional control measures that are currently available to advance the time for achieving the 15 percent ROP. Several of these are identified in the *Report of the Arizona Governor's Air Quality Strategies Task Force* (1998). For example, adoption of CARB diesel fuel standards would reduce VOC emissions by 7.1 mtpd. Additional controls on consumer products would produce 1 ton per day in VOC reductions. Other examples are included in the report.**

Response 11: First, EPA notes that 1998 Governor's Task Force report referred to by ACLPI was issued on February 17, 1998, more than three weeks after the publication of the proposal for this action and was not available to EPA at the time it prepared its "as soon as practicable" demonstration. EPA did include recommendations from the 1996/97 Governor's Task Force Report in its analysis and many of these duplicate or are very similar to the recommendations in the 1998 Task Force report.

ACLPI is correct that the 1998 Task Force report shows that adoption of the CARB diesel fuel standards would reduce Phoenix VOC emissions by 7.1 mtpd in 1999. The report, however, also states that implementation of this measure would require at least two years and thus could not occur prior to mid-2000, more than a year after the April 1, 1999 demonstration date for the 15 percent ROP. The State's consultant concluded that the two-year implementation schedule was the minimum necessary after reviewing the refining capacity available to produce CARB diesel fuel for the Phoenix market. See *Report of the Governor's Air Quality Strategies Task Force*, February 17, 1998, p. 77. Since EPA has no grounds to dispute the consultant's conclusions (which were endorsed by the Task Force) regarding the minimum implementation schedule for CARB diesel, it finds the measure would not advance the date by with the 15 percent ROP would be met.

The Task Force recommended adoption of California's phase I and phase II consumer product standards which are more stringent than EPA's proposed national standards for 13 product categories not currently regulated in Phoenix: single phase aerosol air fresheners, engine degreasers, solid or paste forms of furniture maintenance products, non-aerosol forms of glass

cleaners, hairsprays, aerosol insect repellants, nail polish removers, automotive brake cleaners, aerosol dust aids, fabric protectants, crawling bug insecticides, and personal fragrance products.

Except for hairsprays, California's more stringent limits are already in place. See Table 35. The compliance date for the final VOC limit for hairsprays is June 1, 1999, two months after the April 1, 1999 demonstration date for 15 percent ROP in Phoenix.[16] As can be seen from Table 35, the majority of the emission reductions (or approximately 0.9 metric tons per day) that would result from implementing CARB's consumer products rule in Phoenix come from the final hairspray standard. The balance of the tighter CARB limits produce only a 0.23 mtpd reduction, which EPA finds to be de minimis.

[16]The original compliance deadline for the final hairspray standard was January 1, 1998. In March 1997, CARB extended the deadline to June 1, 1999 because additional time was needed by hairspray manufacturers to complete reformulation research, consumer testing, and final product development. See *Initial Statement of Reasons for Proposed Amendments Pertaining to Hairspray in the California Consumer Products Regulation*, CARB, February 7, 1997, p. 2.

TABLE 35
POTENTIAL ADDITIONAL REDUCTION FROM IMPLEMENTING CALIFORNIA'S PHASE I AND PHASE II CONSUMER PRODUCTS LIMITS IN ADDITION TO THE FEDERAL CONSUMER PRODUCTS RULE

CATEGORY	FEDERAL STANDARD	FINAL CARB STANDARD	ADDITIONAL REDUCTION FROM CA STANDARD IN CALIFORNIA (1989)	ADDITIONAL REDUCTION FROM CA STANDARD IN MARICOPA (1996)
	PERCENT VOC BY WEIGHT	PERCENT VOC BY WEIGHT	LB/DAY	LB/DAY
Single-phase aerosols air fresheners	70	30 (1/1/96)	620	51
Engine degreasers	75	50 (1/1/96)	480	194
Furniture maintenance products --solid or paste forms	--	7 (1/1/94)	240	20
Non-aerosol glass cleaners	8	6 (1/1/96)	960 (from no control to 6 % value)	<<76
Hairsprays	80	55 (6/1/99)	9760	(2000)
Aerosol insect repellants	--	65 (1/1/94)	260	22
Nail polish removers	85	75 (1/1/96)	180	18
Automotive brake cleaners	--	50 (1/1/97)	280	23
Aerosol dusting aids	35	25 (1/1/97)	220	18
Crawling bug insecticides	40	20 (1/1/98)	1540	128
Personal fragrance products with 20 percent or less fragrance	--	75 (1/1/99)	360	30
Personal fragrance products with 20 percent or less fragrance	--	65 (1/1/99)	18	2.0
Total by April 1, 1999				506 lb per day 0.23 metric tons per day

Sources: Federal standards: 61 FR 14531, 14542 (April 2, 1996); California standards, California Code of Regulations, title 17, Article 2, section 94509; emission reduction estimates for California: Technical Support Document, *Proposed Regulation to Reduce VOC Emissions from Consumer Productions*, CARB, August 1990, p. 71 and Technical Support Document, *Proposed Amendments to the Statewide Regulation to Reduce VOC Emissions from Consumer Productions- Phase II*, CARB, October 1991, p. VI-8. Reductions were scaled to Maricopa County using a factor of 0.0715 (following the procedures in *Feasibility and Cost Effectiveness of New*

Air Pollution Control Measures, Sierra Research, p. 74) and grown to 1996 levels using a population growth factor of 1.16.

The 1998 Governor's Task Force evaluated and recommended controls for not only VOC but also nitrogen oxides, carbon monoxide, particulate matter and regional haze. These controls range from I/M program improvements to improved compliance with the area's fugitive dust rules and include numerous study proposals (e.g., Transit Task Force). Since ACLPI was not specific about what additional control measures EPA should evaluate for this plan, it is not possible for EPA to respond in more detail to this comment.

***Comment 12*: ACLPI comments that EPA improperly concluded that numerous measures recommended by STAPPA and others are not feasible noting that EPA rejects these measures based on the mere assertion that the measure cannot be adopted quickly enough, or would not produce adequate emission reductions. ACLPI asserts that EPA cannot rely on such conclusions without factual support in the record. The Center also states that a number of the specific rationales offered in Table 34 of the Technical Support Document are simply not defensible. ACLPI gives as its example EPA's rejection of benefits from expanding the geographic reach of auto emissions testing (TSD p. 70) on the ground that EPA does not credit emission reductions outside the nonattainment area toward the 15 percent ROP. ACLPI claims that this argument ignores the fact that such a measure would reduce emissions within the nonattainment area, because many of the tested vehicles are driven within the nonattainment area.**

Response: 12 EPA agrees with ACLPI that expanding the geographic reach of the State's I/M program would reduce the number of untested vehicles within the Phoenix nonattainment area resulting in emissions reductions within the nonattainment area and has corrected the text in Table 34. EPA did evaluate a number of other I/M program improvements and these all suffered from the same implementation problem: even if it were possible for EPA to establish its own I/M program within 6 months of the effective date of this rule, the program would not yield significant emission reductions prior to April 1, 1999 because the majority of the vehicle fleet would be tested on a biennial schedule. The likelihood of EPA being able to set up a program that quickly is remote given the Agency would need to hire a contractor to run the program and that contractor would need to either construct or otherwise obtain testing stations and hire and train staff as well as notify vehicle owners of the testing requirement and provide them a reasonably period to comply. Finally, ADEQ evaluated expanding the I/M program to New River and Apache Junction areas as part of the reanalysis of the VEOP and found that it would provide a benefit of only 0.42 mtpd by mid-1999. See *Reanalysis of the VEOP*, p. 6-10. Thus, the measure would result in de minimis reductions.

Since ACLPI fails to indicate other specific instances where the Center believes the record to be inadequate, the Agency is unable to further respond to this comment.

***Comment 13:* ACLPI also cites EPA's rejection of additional TCMs on the ground that the area already has some TCMs in place, a claim ACLPI asserts ignores the possibility of expanded TCMS, such as major mass transit expansion. Finally, ACLPI**

claims that the Agency is simply incorrect to assert that improved transit ridership could not be achieved before 1999. To support this claim, ACLPI cites a program of zero or reduced bus fares as an example that would lead to immediate ridership increases and notes that such a measure has been endorsed in previous SIP documents prepared by MAG, but never adopted.

Response 13: EPA's authority to promulgate measures in a FIP which would require the State to enact legislation or expend state funds, as would be the case with most transportation control measures, is limited. See, for example, EPA's analysis of potential controls for the proposed Phoenix area PM-10 FIP, 63 FR 15920, 15929 (April 1, 1998). EPA may require the State to enact legislation or expend its funds if the FIP measures affect the pollution-creating activities of the State, but may not do so if the effect is to govern the pollution-creating activities of others.[17] Therefore, EPA could not require the State (or its political subdivisions) to expand a mass transit system in order to reduce emissions from private automobiles. Likewise, EPA could not require the elimination or reduction of bus fares for this purpose because to do so would in effect compel the State or locality enact legislation to recoup the lost revenues.

As a result, the only way that EPA could implement zero or reduced bus fares in the Phoenix area would be for the Agency to reimburse local transit agencies for lost fare box revenues. Projected fare box revenues in 1998 are $21.7 million,[18] or almost 7 times the $3.4 million in Clean Air Act grant funds awarded in 1998 to Arizona state and local agencies combined, to implement all Clean Air Act programs. Given its costs, the measure is simply not practicable for EPA implementation. Furthermore, assuming EPA were somehow able to obtain the necessary funding for such a project, the bureaucratic process, including negotiating and establishing the necessary contractual relationships with the transit agencies in Phoenix, would result in an implementation date far beyond April 1, 1999. The mere fact that the measure has been analyzed in State plans does not indicate that the measure is available to EPA for inclusion in a FIP.

Major mass transit expansion, whether expanding bus service (which would require EPA to purchase buses) or constructing fixed rail systems, would require much more time than is available between today and April 1, 1999 to be implemented and thus are not available to advance the date by which the 15 percent is demonstrated. In addition, as with the elimination or reduction of bus fares, the costs associated with such an endeavor are prohibitive. The 1997 MAG Long Range Transportation Plan estimates a combined operational and capital cost of $2.3 billion (1997 dollars) between 1998 and 2010 to double the current bus fleet and construct a 15-18 mile long fixed guideway starter corridor. See *MAG Long Range Transportation Plan, Summary and 1997 Update*, p. 97.

[17]For a detailed discussion of this issue, see 52 FR 23263, 23291-23292 (February 5, 1994) (proposed ozone and CO FIP for the South Coast Air Basin).

[18]Draft *MAG Transportation Improvement Program, FY 1998-2002*, MAG, September 1997, p. A-5.

***Comment 14*: ACLPI notes EPA's rejection of a number of measures because they purportedly cannot be implemented by EPA itself and claims that this not a legitimate basis for concluding that the measure is unavailable to the state to advance the rate of progress here.**

Response 14: EPA made no conclusions regarding the availability of measures to the State. EPA evaluated measures based on its own ability to implement them, an appropriate criterion given that the Agency was proposing a FIP and not acting on a SIP.

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17. *Delaney v. EPA*, 898 F.2d 687, 691 (9th Cir. 1990).

18. *Note*, Margo Oge, Director Office of Mobile Sources and John Seitz, Director, OAQPS to Regional Division Directors; "Re: Date by which States Need to Achieve all the Reductions Needed for the 15% Plan from I/M and Guidance for Recalculation", August 13, 1996.

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42. *Memorandum*, John S. Seitz, Director, OAQPS to Regional Air Division Directors; "Credit for 15 Percent Rate-of-Progress Plans for Reductions from the Architectural and Industrial Maintenance (AIM) Coating;" December 9, 1993.

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